CLINICAL MEDICINE AND SURGERY

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GEORGE B. LAKE, M.D., Editor

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UNIV. OF MICH.

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VOLUME 45 JANUARY, 1938 NUMBER 1

EDITORIAL

Dr. Mary McKibbin-Harper

Organizer, Editor, and Author

THE feminine section of the medical profession, though relatively small in numbers, exerts an influence out of proportion to its size, even though its members have not made extensive contributions in the fields of surgery and research, which now seem to occupy the lime-light a good deal of the time.

One of the most influential of the medical women of the United States is Dr. McKibbin-Harper, of Oak Park, Illinois.

Mary McKibbin was born in Frankford Springs, Pennsylvania, and her formal education was begun under tutors, after which she attended the Academy in her native town. At the age of fifteen years, having passed the teachers' examination with high honors, she was given special permission to teach in the public schools of Beaver County, Penna., and while doing this attended summer courses at the State Teachers College at Indiana, Penna., from which she was graduated. In the same way she attended two colleges and obtained her Bachelor's degree in Science.

In 1895 she entered the Medical Department of the University of Michigan, where her work was of a high order. In her senior year she served on the staff of Dr. James Martin, head of the department of obstetrics and gynecology, acting especially as a demonstrator of cystoscopy on the female.

After receiving her degree as a Doctor of Medicine, in 1899, Dr. McKibbin did graduate work in England, Germany, and Paris, and then established herself in practice (gynecology, obstetrics, and pediatrics only) at McKeesport, Penna., where she was very successful for three years. She then married Mr. Harper, after which they moved to Chicago.

For twenty years (until 1919), Dr. McKibbin-Harper practiced her specialties actively, with time out in 1910 for another European tour for study and relaxation. From 1919 to 1925, she confined her practice to office consultations and spent every hour of leisure in intensive study of the fine and applied arts and literature, especially the works of Charles Dickens, in which she had been interested since girlhood. In 1923 she founded the Dickens Fellowship of Chicago, and since then has established other branches of that organization.

In 1925 she gave up active practice, and started upon a tour of the world, for professional and literary studies and to gather material for her writing. The next year she became the editor of *Women in Medicine*, the official organ of the American Medical Women's Association, which position she has filled successfully, under heavy difficulties, up to now, though she hopes soon to be re-

lieved of that burden. She has not been an official of the A.M.W.A., but her exceptionally wide acquaintance with medical women all over the world has enabled her to be of vast assistance to the new officers which are elected each year, and her extensive travels have given her an opportunity to do invaluable organizing and promotional work, which she has done at her own expense. In 1929 she was a delegate to the International Congress of Medical Women, in Paris, and then went to Greece and Turkey, to study the women's hospitals in those countries.

Dr. Harper is a life member of the A.M.W.A.; a member of the International Association of Medical Women; a former honorary fellow of the A.M.A., and an honorary member of the Iowa State Association of Medical Women, the Oak Park and River Forest Physicians' Club, and other professional groups.

In the literary field she is a life member of the Order of Bookfellows and vice-president of their Library Guild; honorary president of several branches of the Dickens Fellowship; founder and director of the Oak Park and River Forest Art League; and takes an active part in local and national literary groups.

Now, at the height of her powers and after long years of strenuous activity in behalf of her professional sisters, Dr. Harper is retiring from the heaviest of these important duties, to take up the literary career for which she has been preparing herself. With her fund of energy and enthusiasm there is every reason to believe that she will be as successful in that field as she has been in medical practice, journalism, and organization.

Action may not always bring happiness; but there is no happiness without action.—DISRAELI.

A New Year

"Now the New Year, reviving old desires,
The thoughtful soul to solitude retires."
—OMAR KHAYYAM.

FOR some reason or other, perhaps because Julius Caesar decided, in 46 B.C., to have it that way, we, in common with most of the Christian nations, seem to think (if we think about the matter at all) that a new year just naturally begins on the first day of January; and, in this country at least, the coming of that day is welcomed as an occasion for a riotous, and generally a more or less inebriated celebration.

As a matter of fact, there is no more reason for assuming that a new year begins only on January first than there is for selecting any other day for that event. The ancient Egyptians and Persians began their year at the autumnal equinox (September 21), and the Greeks, until 432 B.C., used the winter solstice (December 21) for the same purpose; after that date changing to the summer solstice (June 21). The Jews begin their civil year on September 6, and their church year at the spring equinox (March 21). In Anglo-Saxon England, the new year began on December 25; in early medieval times, most Christian peoples celebrated March 25 in this manner; the members of the Russian and Greek Catholic Churches, who still use the old Julian calendar, begin their year on January 13. When, in 1582 A.D., Pope Gregory XIII initiated the Gregorian calendar (which we now use) and restored January 1 to its position as New Year's Day, most of the Roman Catholic countries accepted it at once, but Scotland did not fall in line until 1600; Germany, Denmark, and Sweden joined the procession in 1700; but England did not give up March 25 as New Year's Day until 1752.

The purpose of this somewhat pedantic prologue is to show that there is no logical reason for believing that a new year begins on any particular and specific day, unless we accept the winter solstice, when, in the northern hemisphere, the sun starts back in our direction, or the spring equinox (which seems to have been referred to by the Persian philosopher and poet who furnished our text), when the earth begins to wake from its winter's sleep. *Any* day may be New Year's Day for us to start putting our good resolutions into execution, if we will *make it so;* and it might help us in that worthy exercise to remember that, on the first day of the new year 747 B.C., the legendary King Tatius was presented by his subjects, as a good omen, with branches of vervain, gathered in the sacred Grove of Strenua, goddess of *strength.*

Since, then, it seems obvious that *we* are the ones to decide when our New Year begins, the next thing to settle is how we shall welcome its advent. Shall we wake up to the first day of our new beginning with a *Kazenjammer,* resulting from the potations and unrestraint of the night before, or shall we be as "thoughtful souls" as the delightful old pagan tentmaker who, though he sang the praises of wine, was also wise enough to

recommend retirement for solitary contemplation at crucial moments.

All who seriously purpose to cooperate in their own evolution and that of the race, must plan for frequent inventories of themselves and their accomplishments, in order that they may recognize lacks and weaknesses and correct them; for spiritual progress, like charity, begins at home.

The enlightened man should live fully *every day.* As he ceases resisting time, and accepts the creative message of each moment, every moment is seen as a birth—the beginning of a new year and a new life. Man, as he lives creatively, lives in a constant process of integration; every day is New Year's Day for him, and its happiness (or the reverse) is of his own contriving.

Men are often capable of greater things than they perform. They are sent into the world with bills of credit, and seldom draw to their full extent.—WALPOLE.

Progress in the Science and Art of Medicine—1937

THE past year has seen few, if any, advances in general research of far-reaching importance to Medicine that are strictly new or that have gained general acceptance. Perhaps the most important suggestions advanced are that of Oelgoetz, of Columbus, O., to the effect that food allergy may be due to a deficiency of *digestive enzymes in the blood* (see article by Ragland, in this issue), and the tentative hypothesis that the socalled *viruses* are merely enormous protein molecules that behave, in some respects, like living organisms. In this connection might be mentioned the offering of a new acid-alkali indicator (*Nitrazene*), which is as simple to use as litmus paper and gives direct readings in terms of hydrogen-ion concentration (PH).

The widely-publicized campaign against *syphilis,* inaugurated by Surgeon General Parran, of the U.S. Public Health Service, is a notable feature of the year's activities, in which every physician should personally cooperate.

In *therapeutics,* it would appear that the development of the *shock treatment of schizophrenia* (dementia precox), with insulin or Metrazol, may prove to be this year's most important contribution.

Among drugs coming into wide use in 1937, *sulphanilamide* has probably caused the greatest sensation. Its field of usefulness, orally and parenterally, is by no means fully determined and its toxicity demands care in its use, but it bids fair to be a powerful addition to the armamentarium of the physician. This drug, as well as mandelic acid, which is also rather new, is discussed in Dr. Searle's article in this issue.

The treatment of diabetes has been facilitated by the introduction of *protamine-zinc insulin* and *histone insulin.*

In the treatment of peptic ulcer, *magnesium trisilicate* seems to be replacing the standard alkalies, in the practice of many physicians, and several preparations of it are now on the market.

The treatment and prophylaxis of various diseases by means of *biological products* is steadily becoming more feasible by reason of the increasing concentration of antiserums, which is being achieved by several manufacturers.

Chest surgery, in the treatment of *tuberculosis,* is not new, but the past year seems to have seen a wider popularization of its use than ever before. Dr. Wheaton discusses the subject in this issue, and the third installment of Dr. Kline's able article is scheduled to appear next month.

In *physical therapy* the most notable advance seems to have been the widening discussion and use, in this country of the *short and ultra-short ("radio") waves.* This method is by no means universally accepted (perhaps because it is insufficiently understood), but seems to possess immense possibilities.

The Osteopaths in Great Britain, whose status is somewhat different from that in the United States, are embarking upon a program of laboratory studies, under the aegis of the Scottish Osteopathic Research Institute, of Edinburgh. Five of the seven members of their Advisory Committee hold medical, as well as osteopathic degrees. A decidedly interesting report was presented at the annual meeting of the American Osteopathic Association in 1937.

It is entirely possible that time will show that a number of important matters have been overlooked in this brief sketch of the year's progress; but looking out over the field from this Editor's desk, the ones mentioned appear to be the most significant items of progress in 1937.

Progress is the activity of today and the assurance of tomorrow.—EMERSON.

"Getting Good Results"

IT IS not at all uncommon, in looking over reports sent in by physicians in connection with some new drug or procedure, to find the statement, "I am using so-and-so and getting good results."

What, in heaven's name, does a report like that mean or amount to? Precisely nothing! Results obtained, good or bad, depend upon the nature of the case, and their "goodness" or "badness" are matters of individual opinion in the mind of the attending physician. The medical world is eager to know exactly *what* drug or other method of treatment you used; *how* you used it — dosage, technic, etc., *in detail;* and the *precise results* which followed its use—changes in temperature, pulse rate, blood pressure, leukocyte count, etc.

We may do certain things for a patient and *think* that they have had certain effects upon him, but unless we accurately and repeatedly *measure* such of his functions and tissue changes as are measurable we can never *know* what results we have achieved, and without knowledge there is no science to medical practice.

The human memory is frail and fallible and prone to lapses at critical moments, so that, even though we know a thing today, we may forget it by tomorrow or next week unless we *make a record of it.* Such records serve two highly practical purposes: They make the results of our past studies and observations available to us at any time, for our future guidance; and they place us in a position to convey valuable information to the other members of the profession, thereby increasing their usefulness and our own prestige.

We have complaints, now and then, that the laboratory is overshadowing the sick-room in our medical publications. Who is to blame for such a condition of affairs, if not the clinicians of this country? The findings of the laboratory are not more fundamentally scientific than those made at the bedside; but the laboratory worker is trained in—and *uses*—the *scientific method,* diligently *observing* and *recording* his results as he goes along; while we clinicians — equally well trained—neglect to use our faculties and the instruments of precision which are now at our disposal, or, if we do use them, omit to make any logical record of what they tell us.

As soon as practicing physicians generally wake up to their powers and possibilities and begin to *observe, record,* and *report* upon what they are seeing and doing, the laboratory workers will be practically crowded out of all but the journals devoted to their specialties.

Again we urge upon every one of our readers to study and record his cases, adequately and accurately, reporting all rare, exceptional, or especially instructive cases as they go along. And when they have a volume of material on any special subject which warrants generalizations, that they write it up for their own benefit and that of others.

The first cost, in time and money, of a workable system for case recording is very small. In the end it will prove to be, not an expense, but the best investment any doctor ever made.

NEXT MONTH

Dr. Wallace Marshall, of Appleton, Wis., will present the basis for the use of histamine phosphate in treating manic-depressive psychosis, and give a detailed report of a case so treated.

Dr. Lindon Seed, of Chicago, will discuss the preoperative treatment of exophthalmic goiter, in an unusually clear, direct, and practical manner.

Dr. E. J. Melville, of St. Petersburg, Fla., will report four cases of dynamic ileus, all of which recovered under medical treatment.

The third, and last, installment of Dr. L. B. Kline's serial on chest surgery will appear.

COMING SOON

"The Elliott Method of Thermotherapy As an Office Procedure," by Martin Leiser, M.D., Poughkeepsie, N. Y.

"Clinical Uses of Silver Nitrate," by F. L. Wilson, M.D., F.A.C.S., Stuart, Neb., and R. L. Gorrell, M.D., D.N.B., Clarion, Ia.

LEADING ARTICLES

Progress in Internal Medicine: Diseases of the Heart and Blood Vessels

(A Review of Some Contributions Made during 1937)

By Nathan S. Davis, III, A.B., M.D., F.A.C.P., Chicago

IN reviewing some of the contributions to knowledge of the pathology, physiology, diagnosis, symptomatology, and treatment of diseases of the heart and blood vessels, the material has been organized simply. A departure from the usual classification is made, in that the hypertensive disorders and arteriosclerotic heart diseases are considered as the results of vascular disease, rather than as types of heart disease with hypertension or arteriosclerosis as the etiological factors.

Pulsation of the Chest Due to Heart Movements

In a series of articles,[1, 2, 3, 4, 5] W. Dressler discusses the significance of the pulsatory movements of the thoracic wall which result from changes in shape and volume of the heart. Systolic depressions of the thoracic wall are due to centripetally directed movement of the cardiac systole that exerts an aspiratory effect on the thoracic wall in two ways: (1) directly, when the heart is in contact with the thoracic wall; (2) indirectly, with the fall in intrathoracic pressure caused by systole. The effect of the aspiratory forces on the thoracic wall is normally equalized by: (1) the opposite directly propulsive force due to the systolic change in the shape of the heart; (2) the expansion of the lungs.

He describes a diffuse systolic depression of the anterior wall of the chest in aortic regurgitation, which is followed by a diastolic pulsation of the thoracic wall which takes place slowly. In tricuspid regurgitation, a diffuse systolic depression of the precordium may be found, which is caused by the complete emptying of the right auricle, and also a systolic propulsion of the right side of the chest, caused by the regurgitation of blood into the liver. The apical thrust is absent in tricuspid regurgitation, but because of the forceful filling of the right ventricle an abrupt diastolic pulsation of the thoracic wall may be found.

In adhesive pericardial disease, pulsations of the thoracic wall are influenced by: (1) an inhibition of the systolic change of shape of the heart, whereby the aspiratory forces due to reduction of the ventricular volume during the systolic efflux prevail; and (2) a change in the mechanism of volumetric diminution, so that the marginal movements of the ventricles prevail because the longitudinal movements of the ventricular cone are inhibited. As in tricuspid regurgitation, there is, not infrequently, a systolic pulsatory movement of the whole chest directed from left to right, but in adhesive pericardial disease the forceful systolic hepatic regurgitation pulse is absent.

In mitral disease associated with aneurysmal dilatation of the left auricle to the right, a pulsating propulsion of the right wall of the chest may be observed, which is at a maximum in the right midclavicular line between the fourth and sixth ribs.

Compressed Heart

C. S. Beck[6] describes the compressed heart as a small, quiet organ, which cannot undergo hypertrophy. The anatomic agent producing the compression prohibits the heart from receiving its normal quota of blood from each systole. As a result, in acute cardiac compression the veins are filled with blood; the venous pressure rises to 15 or 20 cm. of water; the arterial circulation is weak and the arterial pressure falls; there is mental anguish, excitement, or unconsciousness, due to cerebral anoxemia; the skin grows cool and moist; but there is not time for the liver to enlarge or for ascites or edema to form.

In chronic compression of the heart there is a different picture. Whereas, in acute compression, death may result if the intrapericardial pressure reaches a level of 15 to 20 cm. of water; in chronic compression one may survive when pressures as high as 40 to 45 cm. are reached. In chronic compression, the venous pressure is elevated to compensate for the increased intrapericardial pressure. This increase in venous pressure may be due to an increase in the circulating blood volume or to accumulation of fluid in the tissues and serous cavities.

To diagnose and differentiate between acute and chronic compression of the heart,

Beck assembles two triads: For acute compression (1) a small, quiet heart; (2) a rising venous pressure; (3) a falling arterial pressure: For chronic compression (1) a small, quiet heart; (2) a high venous pressure; (3) ascites and enlargement of the liver. Acute compression of the heart is always produced by fluid—usually by blood, but at times by a sterile exudate or pus. Chronic compression is produced by a variety of anatomic lesions: By fluid, scar tissue, neoplasm, or a combination of several of these lesions. He is convinced that adhesions of the heart are silent and incidental.

Trepopnea

Trepopnea, a syndrome characterized by comfort in one recumbent position and discomfort in another, is considered by F. C. Wood, C. C. Wolferth, and A. W. Terrell[7] as an etiologic factor in paroxysmal nocturnal dyspnea. Many patients with trepopnea do not have nocturnal dyspnea, because they change posture unconsciously or else awaken before the onset of the dyspnea. Some cases with nocturnal dyspnea do not have trepopnea.

Grace M. Roth[8] reports that operations on the sympathetic nervous system, which cause little if any change in blood pressure in normal subjects, cause it to change in those with hypertension. Following extensive rhizotomy, she found the effects of change of position to be greater than they were before the operation and similar to those seen in postural hypertension. But such results were obtained only when extensive abdominal denervation was effected.

H. M. Sweeney and H. S. Mayerson[9] found a distinct decrease in cardiac output on quiet standing, as contrasted to recumbency. Electrocardiograms on 16 patients with heart disease and on 45 without cardiac defects were made by A. D. Erkelens,[10] who found changes in all of the leads with changes in posture. The discordance between the changes in the QRS and the T deflections convinces him that the changes in the T deflection are the result of inadequate blood supply to the heart muscle in the erect position, and not to changes in the position of the heart.

According to Van Nieuwenhuizen *et al*,[11] the change in the polarity of the circuit used in Lead IV, accomplished by attaching the left leg lead wire to the precordial electrode and the right arm lead wire to the indifferent electrode, will be universally adopted. They also emphasize the value of Lead IV in the diagnosis of coronary artery disease and its results.

"Acute scurvy in the guinea-pig produces degenerative changes in the cardiac valves and myocardium, as well as definite proliferative lesions along the line of closure of the valves," according to J. McBroom *et al*.[12] A. J. Nedzel[13] reported that pressor episodes, artificially produced in dogs with pitressin, may cause changes in the heart valves varying from swelling and edema, with cherry-red flat dotlike lesions, to formed scars and verrucae or vegetations and ulcers. "Any factor (constitutional vasomotor lability, emotional excitement, meteorologic environment, and others) which may condition the pressor episodes may lead to the development of bland endocarditis."

E. Clark and B. I. Kaplan[14] report that, in two patients who had received large doses of antipneumococcus serum, they found proliferation of histiocytes in the mural and valvular endocardium and in the intima of the aorta and pulmonary and coronary arteries, accompanied by stimulation of the interstitial mesenchymal tissue of the myocardium and other viscera. The coexistence of these lesions with clinical evidence of hypersensitiveness to foreign serum, and their resemblance to lesions produced in animals by protracted anaphylaxis, make it seem probable that these alterations are hyperergic.

S. Weiss and R. W. Wilkins[15] reported that dysfunction of the cardiovascular system, resulting from unbalanced food intake, was a disease of regular occurrence in the United States; that such dysfunction results from changes in the nervous system, in the vascular system, and in the myocardium. They describe in detail that type of cardiovascular disorder that results from vitamin B_1 deficiency.

The growing importance of cardiac neuroses has impressed P. D. White and R. E. Glendy[16] with the need of its emphasis at a time when there is so much publicity about heart disease. They present five striking examples; four of them in which diagnoses of organic heart disease were erroneously made, and one that had been classified as a neurosis when, in reality, it was a case of severe heart disease.

Atherosclerosis

M. C. Winternitz, R. M. Thomas and P. M. Le Compte,[17] in their article on the basic processes leading to the formation of atheroma and related vascular changes, present most interesting and illuminating results of painstaking research. They describe the minute vessels that open into the artery or vein, course beneath the intima, and anastomose freely with the adventitial vessels. They emphasize the importance of continuity of anatomic study, and the value of clearing agents and injection masses in such study, and believe that hemorrhage derived from the intramural circulation is an important element in the development of atherosclerosis. J. Krafka, Jr.,[18] is of the opinion that the relative dilatation of the aorta with age is not due to senescent weakening, but is a compensatory process which attempts the reestablishment of the initial elasticity by alter-

ing the ratio between the thickness of the wall and the diameter of the lumen. He believes that arteriosclerosis is based on interplay of elastic, muscular, and collagenous tissue, resulting in intimal herniation and irrational hyperplasia. He feels that this theory is consistent under the various physical conditions existing in the radicals of the vascular bed, including the aorta, arteries, arterioles, and capillaries.

In a communication, T. Leary[19] confirms the findings of Winternitz *et al.* [17] by citing cases in which he found a capillary circulation derived from the lumen of the coronary artery or from its vasa vasorum. He seems, however, to be still convinced that atherosclerosis is due to the piling up of lipoid cells without adequate provision for their nutrition; to disordered lipoid metabolism.

Coronary Disease

C. T. Burnett[20], and E. P. Boas and H. Levy[21] discuss the pain of heart disease, its radiation and differentiation. According to A. M. Master, S. Dack and H. L. Jaffe,[22] congestive heart failure occurred in 66 percent of patients with acute coronary thrombosis. The mortality was 30 percent in the presence of heart failure, and 4 percent when it was absent. Heart failure was more common in patients with a history of a previous occlusion, of longstanding hypertension, of cardiac enlargement; it was severe when the area of myomalacia was large and when both anterior and posterior surfaces were damaged.

P. D. White[23] believes that the criteria for the clinical diagnosis of coronary artery disease are three in number, and *only* three: "(1) Angina pectoris in the absence of luetic aortitis and extensive aortic valve stenosis or regurgitation; (2) coronary thrombosis that can be clinically recognized; and (3) certain electrocardiographic abnormalities, with or without angina pectoris or recent or old coronary thrombosis."

R. E. Glendy, S. A. Levine, and P. D. White[24] draw the following conclusions regarding coronary disease in the early decades of life: "Men are overwhelmingly the victims. Hypertension as an important factor is predominant in women. A greater number of young patients than of patients in general may be expected to have hearts that are normal in size. There are fewer complications, and diabetes or evident peripheral vascular disease is uncommon. The duration of life for those who died, and the life expectancy of the survivors, is greater than for patients of all ages with coronary disease, but the susceptibility to sudden death is just as great. Inheritance and ancestral longevity are important factors in the early occurrence of coronary disease. Racial factors no doubt are also of importance, in view of the high incidence of Jewish people in our series of 100 patients. Urban life, sedentary occupations and habits, possibly excesses of diet, the excessive use of tobacco, overweight, and increased nervous sensitivity and strain all appear to be more predominant on the part of young patients with coronary disease than on the part of persons who have achieved long life. Alcohol and serious infections do not seem to play an important rôle."

J. H. Palmer[25] adduced evidence to show that the average blood pressure before an attack of coronary thrombosis in his series was about 170/100. During the period following the attack, not less than three months, in a few cases these figures were actually exceeded; but on the average the prior levels were not attained.

Hypertension

It is reported by F. C. Andrus[26] that, while specimens of pectoral muscle from 137 persons showed a marked variation in the degree of intimal fibrosis, it was most marked in severe hypertension. However, all of those with high blood pressure did not show marked fibrosis. Intimal disease was not found in the small arteries or arterioles of the pectoral muscles at any age. He concluded that one could not distinguish between hypertensive and control patients by examining the vessels of the pectoral muscle.

E. A. Hines, Jr.[27] found that a positive family history of hypertensive cardiovascular disease was five times as frequent among individuals who have hypertension or who are hyperreactors to a standard stimulus test (cold pressor test) as it was among individuals who reacted normally to the test. He considers these findings to be strong evidence that heredity plays an important rôle in the development of hypertension and feels that the inherited quality may be a vasomotor system that reacts excessively to certain internal or external stimuli.

W. d'A. Maycock[28] reported an unusual case of congenital narrowing and complete obliteration of the aorta immediately below the renal arteries, in a woman aged 18 years who had had a systolic blood pressure of about 200 for a period of at least five years. She died of amebiasis. The autopsy findings, as published, make no mention of changes in the renal vessels or in the kidneys, except that there was a well-organized infarct in the left kidney and marked cloudy swelling of all parenchymatous organs.

E. T. Oppenheimer and M. Prinzmetal[29] conclude that, since there is no increase in the brachial-digital pressure gradient in hypertension, there is no increased resistance in arteries larger than the digital. This gradient was increased in a patient with pheochromocytoma and epinephrinemia, and in four patients with obliterative vascular disease.

P. Kimmelstiel and C. Wilson[30] describe a type of glomerulitis, occurring in pyelo-

nephritic contraction of the kidney as a manifestation of a generalized vascular disease, that in the vast majority of cases is associated with renal insufficiency and hypertension.

From a clinical study of the action of 10 commonly used drugs on cardiac output, work, and size; on respiration; on metabolic rate; and on the cardiogram, I. Starr, C. J. Gamble, A. Margolies, J. S. Donal, Jr., N. Joseph, and E. Eagle[31] conclude that the effects of the drugs on patients are analogous to comparable results obtained in experimental animals. The drugs investigated included digitalis, epinephrin, ephedrine, caffeine, theophylline, sodium nitrite, nitroglycerin, pitressin, quinidine, morphine, and strychnine.

R. W. Buck[32] presents the advantages of a class method in which medical care, diet, and psychotherapy are featured in the treatment of essential hypertension.

Peripheral Vascular Disease

In an article on "The General Management and Treatment of Obliterative Peripheral Vascular Disease of the Lower Extremities," T. C. Pratt[33] covers the topic very completely. His emphasis on a careful history and complete workup of these cases is proper. In their treatment, he regards reduction of the circulatory requirements of the limb, reduction in edema, and the retarding effect upon infection that can be obtained only by rest, of the utmost importance. He recommends the use of mild sedatives rather than of opiates in the relief of pain in peripheral vascular disease. The stopping of the use of tobacco by all such patients, and especially by those with thrombo-angiitis obliterans, is stressed. The negative-pressure chamber and the therapeutic use of typhoid vaccine and intravenous saline injections in the latter group are merely mentioned. Surgical treatment is discussed more fully. His discussion of out-patient care, the care of the ambulatory case, in which the importance of avoiding trauma, of general foot hygiene, of proper shoeing, of avoidance of strong antiseptics, of the dangers of burns from heating appliances are stressed, is of especial value because of his emphasis on the importance of keeping these patients under management for the rest of their lives and on their learning to live within the limits of their peripheral circulation.

R. R. Linton[34] believes that there are four types of treatment for acute peripheral arterial occlusion: (1) Embolectomy; (2) the use of intermittent negative and positive pressure; (3) the use of vasodilators; (4) symptomatic. He feels that embolectomy, followed by negative-positive pressure and the production of peripheral vasodilatation, is the ideal method of treatment.

In a report on "Results of Total Thyroidectomy in Heart Disease," T. S. Claiborne and L. M. Hurxthal[35] state that the decrease in the number of total thyroidectomies performed at present is a swing back from an enthusiastic trial of a new procedure. Family physicians caring for the cardiac patients who have had this type of treatment do not seem eager to have other patients undergo the procedure, and the opinion of physicians intimately associated with the patients must weigh heavily in the evaluation of this treatment. They believe, nevertheless, that there are some few patients on whom the operation seems justifiable.

H. Feil and C. S. Beck[36] feel that their operation to produce a new blood supply to the heart, with sclerosis of the coronary arteries, is of value. The beneficial effects may be explained in several ways: (1) Actual increase in the arterial blood to the myocardium; (2) redistribution of blood that passes through the coronary arteries by opening intercoronary communications; (3) interruption of nerve pathways from the heart.

Sympathectomy

E. V. Allen and A. W. Adson[37] believe that extensive sympathectomy is of value only in those cases with hypertension that have a marked reduction in blood pressure during sleep or rest; as a result of Sodium Amytal and nitrite; and after intravenous injections of Pentothal Sodium. They claim that the operation does not disable, though it may cause anhydrosis of the lower extremities and loss of ejaculation and probably of fertility in the male. For a time following the operation there may be orthostatic hypotension and tachycardia. They report that about 70 percent of patients so treated were benefited clinically.

I. H. Page and G. J. Heuer[38] believe, as a result of their experiences with sectioning of the anterior spinal nerve roots in patients with malignant or essential hypertension, that the nervous system may play some part in their genesis. In their series of cases, they obtained a marked fall in blood pressure that lasted long after the patient had recovered from the immediate effects of the operation. Such results were obtained in patients with marked anatomic changes in the vessels and in spite of the fact that urea clearance and the ability to concentrate the urine remained unchanged. The "hypertensive diencephalic syndrome" also failed to disappear, even when the blood pressure fell after the operation.

These reports of the results of extensive sympathectomy are of interest, but are not convincing because not accompanied by blood pressure curves covering a period of at least one, and preferably two years before and an equal period after operation. Spontaneous and seasonal variations are so great, in most patients with hypertension, that it is almost

impossible to evaluate any type of treatment without such long periods of observation.

In an article on "The Value of Sympathectomy in the Treatment of Vascular Disease," R. H. Smithwick[39] concludes:

"(1) Recent advances in the knowledge of the anatomy and physiology of the sympathetic nervous system have been responsible for excellent clinical results following sympathectomy for various diseases of the vascular system; (2) preganglionic section, in cases exhibiting marked vascular spasm of the extremities (Raynaud's disease), has resulted in very satisfactory clinical results, which could not be obtained by ganglionectomy; (3) certain cases of thrombo-angiitis obliterans are suitable for sympathectomy by peripheral nerve block, and a smaller number by preganglionic section; (4) paravertebral alcohol injection is an established procedure, and is followed by a high degree of symptomatic relief in cases of angina pectoris. The technic, however, demands a good deal of experience and skill; (5) splanchnic resection for essential hypertension offers a high degree of symptomatic relief to patients suffering from this disease. When performed early in the disease, a high percentage of cases will obtain a material lowering of the blood pressure level. Further observation is necessary to decide whether this will result in arrest or cure of the disease in the early stages and whether, even in the absence of blood pressure change, the course of the disease in its later stages is materially altered. The selection of cases of hypertension for sympathectomy should be undertaken by one that has had an extensive clinical experience with this disease."

In a recent address, Richard C. Cabot[40] said: "Here is a power that is not neutral, but tremendously biased on the side of life as against death. It does not win every time, and it still leaves plenty of work for all of us doctors to do; but still it does about ten times as much as all that we can do to keep life from being overcome by death. We see, then, a force that has superhuman wisdom and that cares tremendously about life . . . So instead of *'vis medicatrix naturae,'* we should say *'vis medicatrix Dei.'* It is the power of God on which each one depends today for the fact that he is here instead of being underneath the earth . . . There is no reason, then, so far as I can see, why doctors should be afraid of the simple, old-fashioned word, God. The medical profession has learned in studying disease, more about the meaning of this word than the vast majority of the socalled religious people."

Do any diseases demonstrate the truth of these quotations better than those of the heart and arteries? In treating them we must do nothing to interfere with this force "so biased on the side of life as against death."

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Progress in the Study of Allergy

The Oelgoetz Test for Blood-Serum Enzymes (B.S.E.)

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AS an introduction to this novel and interesting subject, two considerations must be set down for acceptance by the reader, in order that the basis for these developments may be understood.

First, we must concede that a number of clinical problems in medicine are essentially the result of defects in the capacity of the organism to dispose of certain substances circulating in the blood which, in ordinary circumstances, are disposed of without special effort or detriment. Among these problems is food allergy, an important clinical entity which consists essentially of a defect in the completeness with which normal food products are digested and assimilated by the cells of certain individuals. In addition, there is a defect in destruction, probably by the liver, of wastes which normally are ultimately transformed within the hepatic cells and then eliminated, perhaps in the form of urea. In the same category is absorption of foreign-protein breakdown products from areas of infection, as in tuberculosis and carcinoma, and from unhealed ulcerative conditions resulting in febrile toxemias and depletion. In each of these conditions effete material is permitted to accumulate, and part of it circulates in the blood, irritating some structures, depleting others, and producing inevitably what is commonly called the toxic state, resulting in hypoadrenia or cachexia.

Second, we must concede that there is a protective mechanism, automatic in nature, by means of which the body is able to cope in some degree with these varied toxemias. Digestion in the blood serum of such allergic or toxic products disposes of some of them.

Having granted these two essential premises as a basis for this paper, we shall begin our consideration of the subject by a discussion of two comparatively recent developments in clinical medicine: (1) The estimation of variations in the digestive capacity of the blood serum, and; (2) the study of methods of increasing this digestive factor, with the idea of accentuating the capacity of the blood to rid itself of material which is a source of offense.

At a meeting of the Endocrine Round Table, on December 10, 1936, a review of the work of A. W. Oelgoetz, of Columbus, Ohio, was a part of the program. This paper, entitled "The Treatment of Food Allergy," struck a responsive chord, and my facilities made it possible for me to carry out the serum-enzyme test quite closely following Oelgoetz's technic. Before long I had completed a hundred such estimations, and to date the figure is 301. As a result, the original procedure has been modified somewhat and my colleagues and I have arrived at definite conclusions as to the practical use of the serum-enzyme test and its value as a guide in our consideration of patients suffering from allergic and other toxemias. Among these investigations we have made many duplicate and repeat tests, thus putting ourselves in the position of demonstrating the response to therapy and paralleling clinical developments with an accurate laboratory check.

I feel that Oelgoetz's claims have been amply substantiated; that the serum-enzyme test is workable, dependable, and a worthwhile means of explaining a phase of allergy which, but for these developments, might still be hidden from us. Further, these essentially research aspects of the subject have been matched for clinical value by the therapeutic attainments which have naturally followed these disclosures. Low serum-enzyme values being the rule in allergic and other toxic states, pancreas therapy is indicated, and its results have enabled us to raise a low B.S.E. (blood-serum enzymes) index in forty-eight hours, with clinical improvement in many of the cases treated in this way.

The Serum-Enzyme Test

The technic of the serum-enzyme test suggested by Oelgoetz is comparatively simple, and is outlined here:

The S.E. (serum-enzyme) Test has the purpose of demonstrating the enzyme content of blood-serum. Only one reagent is neces-

sary. This is a 5-percent suspension of starch cells (ordinary insoluble laundry starch) in distilled water, to which four drops of Lugol's solution are added for each ounce, and shaken. This results in a blue-black suspension, which is seen under the microscope to consist of starch cells stained blue-black by the combined iodine.

After this reagent is centrifuged, and the supernatant liquid tested with soluble starch solution, it should be found entirely free from iodine, all of it having been fixed by the starch cells. Therefore, the S. E. Test reagent consists of a 5-percent suspension of starch cells in distilled water, each cell consisting of a definite quantity of starch-iodine compound (not, however, entirely saturated). This has been found to be the "just right" amount to visualize the digestive processes as they proceed. The serum is obtained as usual, by withdrawing from 7 to 10 cc. of blood from a vein. This is set aside in a tube (preferably in a refrigerator) for four hours, until clotting and separation are complete.

The test consists of incubating varying amounts of fresh blood serum with uniform amounts of the reagent. Usually six tubes are used. Each tube contains 1 cc. of the S. E. Test reagent, and, respectively, 0.1, 0.2, 0.3, 0.4, 0.5, and 0.6 cc. of the serum to be tested. The tubes are shaken and placed in a hot-air incubator (not a water-bath) for twenty-four hours, at body temperature. It is not an advantage to shake the tubes twice during the incubation.

During the progress of the test the starch cells gradually change color, from black to white, and this change exactly parallels the formation of digestive end-products, as may be determined by actual titration. Thus a high iodine number means high sugar, fatty acids, and amino-acids, while a low serum-iodine number indicates a low production of digestive end-products. Likewise, the quantity of digestive end-products produced is a direct measure of the concentration of enzymes present in the serum.

In interpreting the test, the tube in which all the color has disappeared in twenty-four hours (i.e., completely white) is considered to be the standard. Thus, if the 0.2 tube turns completely white, while the 0.1 tube still retains a quantity of dark sediment, the reading is 0.2.

It has been found, after testing many serums, that normal serum rarely goes above 0.2. Two tenths, therefore, is considered to be normal pancreatic serum index, or normal iodine number of serum. If, say, the 0.4 tube is the first to turn completely white, then the pancreatic index is indicated as minus two, because it takes twice as much serum as normal to cause the change. (0.4 minus 0.2 equals minus two.)

The tubes can be read before twenty-four hours elapse, but inasmuch as the reaction comes to a final end-point, it is more convenient to read the results the next day.

Discussion

To accept a new idea and work with it for the benefits to be obtained therefrom is a wise procedure. But this requires work: not only the actual work of getting the blood and doing the tests, but new ideas require mental effort—the effort necessary in giving up old ideas and mental processes in order to use new ways of thinking.

Oelgoetz believes that deficiency of blood-serum enzymes is the real and basic cause of food allergy, and contends, from his work, that these blood-serum enzymes are produced by the pancreas. In my work, I have not limited the test to cases suspected of food allergy, but have made it a routine part of my examination of all cases. The thoughts expressed here and the experiences to be related have come from 280 tests in 213 cases. A statistical analysis of my records gives some interesting figures.

In the 280 tests, I found 76.07 percent to show some degree of deficiency, while 23.93 percent gave normal results. Some of these normals had become so following treatment. One test among these showed minus 3 at first, became normal from treatment, and then slipped back to minus 1. Those deficient on the first test made up 65 percent of the cases. When I separated all the deficient cases, I found that 31.92 percent showed minus 1; 15.96 percent showed minus 2; 17.37 percent showed minus 3; and 34.74 percent showed minus 4. A glance at these figures will show that the largest percentage was minus 4; and these were not all cases of food allergy, as such cases are usually classified.

This leads me to some thoughts on the interpretation of the different degrees of deficiency on the first test. A minus 4 case is one of food allergy, regardless of the symptoms. Insomnia is not generally classed as a manifestation of food allergy, but I have had one such case. All minus 4 cases do well on pancreas feeding. In fact, they do better, and the response in them is quicker and more spectacular, than in the others. The minus 3 cases also do well, but have seemed to me to take a longer time. The minus 2 cases have not done well on pancreas feeding alone. A few have done better on pancreas and dilute hydrochloric acid. The acid was given before, and the pancreas after meals.

The minus 1 cases may not be pancreatic at all. They do not benefit from pancreas treatment. These are the cases of suboxidation that have some other dyscrinism. A hypothyroid, hypo-adrenal, or hypopituitary patient may be in the minus 1 class. The serum-enzyme test becomes normal when the dyscrinism, whatever it may be, is adequately controlled.

When I look at these figures I ask myself the question: What is the cause of this apparently widespread deficiency, even among people who are not classically allergic? This is my answer, as I reason it out:

We all know that a newborn human baby has no ptyalin in his saliva. He cannot digest starch and his natural food contains protein, fat, sugar, salts, and water, but no starch. At the age of 6 months changes take place. Ptyalin appears in the saliva and teeth begin to erupt. These teeth, as a rule, and according to dental authorities, are incisors. With their advent we have in the past started the feeding of starches, such as cream of wheat, potatoes, and toast.

Even though the babies have considerable intestinal disturbance, diarrhea, and fevers, we continue to feed starches. Barley and arrowroot gruels were quite the vogue when I was young in practice. Frankly, I do not think that this procedure is right, and here is the reason: The first teeth are incisors—teeth designed by nature for tearing and biting, but not for chewing. Such teeth can bite off small pieces of meat, but they cannot chew grain. The grinders or molars do not erupt until the child is from 20 to 30 months of age. *It is my conviction that the eruption of molar teeth is a sign that the starch-digesting mechanism has been fully developed.* The pancreas and the alimentary tract are now adequately prepared to digest and assimilate starches, as well as sugars, proteins, and fats.

But, what about that year or two in which we are feeding the baby cream of wheat? What are we doing to his pancreas? Are we helping to develop it into a strong, healthy gland? I think not. We are doing the same thing to the pancreas that we would do to the baby's arm if we tied a ten-pound weight to it. Such an arm will not grow into a strong arm, but will be weak because of the excessive load we put upon it during the period of development. It seems to me that the pediatrists have need of this blood-serum-enzyme test of Oelgoetz. I feel confident that its extensive and wide-spread use in babies and small children would rapidly eliminate many cases of food allergy. This practice would, in truth, be real, honest-to-goodness preventive medicine.

In their paper, "The Treatment of Food Allergy and Indigestion of Pancreatic Origin with Pancreatic Enzymes" (*Am. Jour. Digest. Dis. and Nutrit.*, 1935, xi, No. 7, p. 424), Oelgoetz and his associates say: "Hypofunction of the pancreas results from many causes. Thus we find it secondary to gallbladder disease, with secondary infection of the biliary and pancreatic ducts; following such general infections as syphilis; and accompanying congestive states, such as a defective myocardium. In many instances, however, the hypofunction is primary." It is possible that my thoughts expressed above may account for these primary cases of hypofunction. It seems to me that the primary cases far outnumber those with definite infections as the cause. Faulty development of the pancreas as a cause of hypofunction makes the idea of heredity unnecessary. Even Oelgoetz questions the belief that one may inherit a poorly functioning pancreas.

In their preliminary report on studies in food allergy (*Ibid.*, Dec., 1934, i, No. 10, p. 733), the authors quoted stress the idea that the pancreas secretes amylase, lipase, and proteinase at the same time; that all three are inseparable in pancreatic juice. But, when the concentration of amylase decreases, that of all of them decreases. This finding is in line with the work of Voegtlin, Greengard, and Ivy. These physiologists report, in their paper, "The Response of the Canine and Human Pancreas to Secretin" (*Am. Jour. Physiol.*, Nov., 1934, cx, p. 198):

"In the human being, as was noted in the dog, secretin apparently causes a greater and more constant secretion of lipase than of the other two enzymes. However, in the human, the production of trypsin is apparently more uniform than is the production of amylase. The fact that the production of amylase is the most easily exhausted of any of the enzymes may explain in part why certain individuals are troubled with flatulence after the ingestion of foods high in starch."

Starch Digestion

At all events, it seems that starch digestion is a very important function in human beings. It also seems to be the most unstable. I think we should be more interested in the subject of digestion in general and *starch* digestion in particular, since it is the balance wheel, so to speak. It is high time we gave up the glib use of the general term "carbohydrates" and were more specific in our speech. Let us designate sugar when we mean sugar. For, while starch has to be converted into sugar before it can be used in the body economy, it may not be digested; and, many things can happen to undigested starch. Upon arrival in the colon, it can and does ferment, because the yeasts, moulds, and bacteria are always there to do their part. And, when we consider the aldehydes, ethers, acetone, glycerol, alcohol, acids, and gas that are formed by fermentation, we cease to wonder that degenerative diseases are increasing so rapidly.

This idea seems to be backed up by W. A. Thomas (*Jour. Am. Med. Assn.*, 1927, lxxxviii, p. 1559), who reported on his study of the incidence of rickets among Eskimos. These people live entirely on meat, fish, and fat. Such foods, remember, are not fermentable. With this diet no rickets develops among them. When they come into contact with civilization, as in Labrador, their diet consists chiefly of dried potatoes, flour, canned goods, and cereal products. As a result,

rickets seems to be almost universal among them.

In applying this knowledge, I have seen bones begin to ossify in eight weeks. This result was checked by x-ray studies and was obtained after eight months of failure by the cod-liver-oil, viosterol-sunshine, calcium-gluconate and cereal method.

Not long ago I saw a statement made by the Metropolitan Life Insurance Company, quoting J. E. M. Thomson (*Nebraska Med. Jour.*, 1932, xvii, p. 324), to the effect that 75 percent of all industrial workers over 40 years of age have some form of rheumatism or arthritis. If we correlate this figure (75%) with the figure for enzyme deficiency that I have given there seems to me to be some significance. My figures indicate that 75 percent of people have some pancreatic deficiency, and this deficiency has been shown by Oelgoetz to be definitely related to starch digestion. Most observers are agreed that arthritic patients do not get along well on starches. Add to this the conclusion of Lloyd Arnold, in his paper on "The Bacterial Flora of the Stomach and Small Intestine" (*Am. Jour. Med. Sc.*, Oct., 1933, clxxxvi, No. 4, p. 471), where he states that the hydrochloric acid (HCl) values in the stomach fall after the age of forty. My physiology tells me that HCl is the natural activator of the duodenal mucous membrane, which produces secretin, the first hormone to be discovered; and secretin, in the presence of blood-serum, is the activator of the pancreas.

It seems obvious, therefore, that a primarily hypofunctioning pancreas, deprived of an adequate amount of secretin and HCl, will produce some disturbance in the digestive capacity, which in turn will disturb the acid-base balance in the lymph. As Oelgoetz has shown that the fat and protein enzymes are reduced when the starch enzymes are lowered, it follows that there will be a disturbed mineral metabolism. To make this more clear, let us consider for a moment the egg yolk. We are in the habit of thinking of this as a globular mass of protein. It is; but, linked to it and as integral parts of the protein molecule there are all the mineral elements necessary to make a chicken. Besides the carbon, hydrogen, and oxygen, there are calcium for bones, phosphorus for the nervous system, iodine for the thyroid, sulphur for feather coloring, beak, and claws. If one cannot adequately digest protein, how can one get the minerals? Calcium has to be combined with protein and digested in an acid medium, otherwise it is lost as an insoluble carbonate.

With this disturbed mineral metabolism and actual loss of minerals, is it any wonder that the forty-year-old worker does not have sufficient minerals with which to combat or neutralize the acids produced in the natural processes of living and working? In addition, many of the products of starch fermentation have a *p*H that is well on the acid side of 7, or neutrality.

Many years ago, Dr. Martin Fisher, of the University of Cincinnati, showed clearly that any reduction in the normal alkalinity would cause a colloidal protein to take up and hold more water than normal. Oelgoetz points out that all the phenomena of food allergy are those of swelling and fatigue. With a hypofunctioning pancreas, aside from the purely digestive inadequacy, there will be disturbed mineral metabolism and acid-base balance, and probably some swelling.

Areas of skin are swollen in urticaria and angioneurotic edema. In allergic eczema the skin is not only swollen, but the water or serum oozes out onto the surface. Any one can see the swollen nasal turbinates in hyperesthetic rhinitis.

Is it, then, illogical to think that the intima of blood vessels may be swollen? Could not such a condition form the foundation for essential hypertension? Oelgoetz found the concentration of enzymes to be one hundred times greater in all organs and tissues than in the blood-serum, with the exception of the heart and brain. With this in mind, can one not imagine that the coronary arteries may easily become and continue to be swollen? It seems to me that this continuous swelling can easily be the beginning of a case of angina pectoris. Restriction of starches in the diet is the part of wisdom.

While we are discussing swellings, can one not imagine a swelling of the walls of the gallbladder? Could the blood circulation be very active, especially in the capillaries, in such a swollen gallbladder? Would a dye permeate such gallbladder tissue? I do not think so. But our roentgenologist friends insist that, after ingestion of this dye-stuff, any gallbladder that does not show a shadow on the plate is infected and should be removed.

Since the prime purpose of digestion is the liberation of energy, it surely follows that there will be fatigue, or lack of energy, if one cannot adequately digest food.

Personal Experiences

One of my early experiences in this work concerns the test itself. When I found a serum that showed minus 4, I always asked myself: Are those enzymes absent from the serum, or are they merely inactive? My attention was called to the synthetic vitamin B_1 (Betalin-S) of Eli Lilly. The statement was made that vitamin B_1 had something to do with carbohydrate metabolism. Eddy and Dalldorf ("The Avitaminoses," Williams & Wilkins Co., 1937) state, in summarizing their experiments on rats, that there is a better utilization of ingested food when vitamin B is added to the diet, and they observe that intestinal dysfunction is greatly ameliorated thereby.

I secured some Betalin-S. A small amount (0.2 cc. of a solution) was added to 1 cc. of the Oelgoetz starch reagent. The same amount was added to 0.2 cc. of a minus 4 serum and 1 cc. of reagent. The contents of these tubes were incubated for twenty-four hours, and *the minus-4 serum then acted like a normal serum.* The B_1 had no effect on the reagent alone, but it did make a minus serum act like a normal one. A natural inference would be that the enzymes were not absent in the serum, but were merely not active. Most enzymes require some inorganic substance to activate them. We are all familiar with the necessity of a mineral acid (hydrochloric acid) to activate the enzyme pepsin. Again, we know that secretin will not activate a pancreas without the presence of blood. May it not be some mineral, in solution or suspension in the blood-serum, that causes the secretin to work? Of course, such a mineral, if present, would belong to that class of substances that act as catalysts.

Vitamins have been called plant hormones. All hormones are catalysts. It follows, then, if the first assumption is correct, that vitamins are catalysts. Can plants fabricate an *organic* catalyst without some *inorganic* catalytic material? Can glands form highly complex, organic, catalytic hormones and chalones without some inorganic catalysts? Can glands make enzymes out of nothing?

Many active *inorganic* catalysts, in very small amounts, will make minus-4 serums behave as normal in this test. From such experiences, I am forced to the tentative conclusion that all minus-4 cases have some mineral deficiency, as well as a hypofunctioning pancreas. We get the bulk of our minerals from proteins, and we fail to get the minerals if we do not adequately and properly digest the proteins. I think this kind of reasoning explains my success with the boy whose case I reported in the *Medical World* for November, 1936.

In the following case reports, only the essential symptoms and findings will be given.

Case 1: Clara O., age 10, seen January 16, 1937, had had no appetite for three years, despite doctors and tonics. For six months she had vomited from one to four hours after her evening meal. This was occurring, at the time I first saw her, three or four times a week, sometimes in her sleep. Her weight was 55 pounds; blood pressure 130/70; urine albumin + +; indican + +; sugar, negative; B.S.E. (blood-serum enzymes), minus 4. Holadin (pancreas extract), 6 grains (0.4 Gm.) four times a day, was ordered.

February 16: Her appetite returned after two weeks, and there had been no vomiting since the pancreas feeding was started. Her weight was 56¾ pounds; blood pressure, 112/72; indican, negative; albumin, a trace. April 3: Weight, 58 pounds; blood pressure, 104/64; B.S.E. minus 1. June 5: Weight, 60 pounds; albumin, negative; indican, negative; appetite good; no vomiting. In September the mother reported Clara to be growing and gaining in every way.

Probably the high blood pressure and urinary albumin were due to swelling of the intima of the blood vessels and kidney glomeruli, and the vomiting due to the digestive inadequacy, as shown by the minus B.S.E. and the indican. At any rate, all these things cleared up satisfactorily.

Case 2: W.I.L., age 28, a salesman. His right ankle had been swollen and painful, with increased color and temperature, for four months on May 17, 1937. He had been told that the condition was arthritis, and had been treated by drugs, vitamins, and "shots." I found his sedimentation test to be normal, but his B.S.E. was minus 4. Pancreas, 60 grains (4.0 Gm.) daily, was ordered. The response came in seventy-two hours. Pain, swelling, etc., disappeared and a cane became unnecessary.

September 13: The ankle continued well. He had had no pancreas tablets for a month. His B.S.E. minus 2. He was advised to continue with pancreas feeding. This must have been a case of allergic arthritis.

Case 3: On January 19, 1937, Miss G.R., age 49, stated that she had had difficulty in sleeping since she was 5 years old. She had been to many doctors and all the large medical clinics in the United States. Nobody had helped her. She had been nervous for years; had considerable gas in the bowels; and had learned that she was better when she avoided starches. Her height was 5 feet 10 inches; her weight 115 pounds. Her average adult weight had been 130. Her greatest weight, for a short time only, was 140. She had had much refractive eye trouble and a nervous facial tic since the age of six. Occasional attacks of back pain had been called spinal arthritis. Her appendix and tonsils had been removed. A uterine fibroid was removed six years ago. The lower liver margin was found to be one inch below the normal level; the pH of the saliva was 6.6; her teeth showed many fillings; her urine showed excess indican; the blood-serum enzyme test showed minus 3.

On January 21, 9 grains (0.6 Gm.) of Holadin were given, four times daily. On February 10, she was highly pleased because she had been sleeping "just like a baby" from 10 P.M. to 7 A.M. The B.S.E. on this date was minus 2. On March 8 she reported that she continued to sleep well; also, she had lost the pain in her back and shoulder. The B.S.E. was minus 2. On May 3, her weight was 129¾ pounds; B.S.E., normal. On June 3 she weighed 131½ pounds, and the B.S.E. was normal. On August 10, her weight was 133¾ pounds and she reported that she had had an attack of enteritis during July, which had left her upset emotionally. She cried easily and had feelings of terror. She had not taken any pancreas since this attack. Her B.S.E. was minus 2.

This case suggests that there is such a

condition as **allergic insomnia;** that all back pains are not arthritic; and that acute infections may cause hypofunction of the pancreas.

Case 4: Mrs. O. F., age 34, had a pain over the gallbladder region, which was severe and required morphine for relief. Roentgenograms, with the dye test, on two occasions did not show a gallbladder shadow. She was advised to have the gallbladder removed. Instead of doing this, she came to me.

On January 9, 1937, her B.S.E. was minus 3, and pancreas feeding was started with 9 grains (0.6 Gm.), four times daily. Pain in gallbladder region stopped in five days. Pancreas was continued until April 21, when the B.S.E. became normal. There was no pain in the gallbladder region after January 14. Contrary to advice, she stopped the pancreas treatment. On June 5 she returned with a pain in right shoulder. Her B.S.E. was minus 1, and pancreas feeding was started again. The pain was gone after three days. On August 23 she reported that she was still free from all pain.

This case causes me to think that x-ray studies are not a method of precision. Failure to show a gallbladder shadow does not always mean inflammation. It is true that there is swelling when an organ is inflamed, and it must be the swelling that prevents the deposition of the dye in the gallbladder; but it would seem that swelling, without inflammation, might do the same thing. As food allergy is always associated with swelling, I see no reason why the gallbladder wall could not be the site of swelling. I realize that this problem could be partially solved by repeating the dye test with x-ray studies. As this patient now has no pain, the dye should enter the gallbladder and show a shadow. But it is quite difficult to get patients who are well to submit to this test, on account of the added and, to them, unnecessary expense.

There is one more type of case in which swelling may be caused by food allergy. I know it is rather revolutionary to say that senile hypertrophy of the prostate may have a food-allergy cause, but I was taught that chronic congestion, if continued for a long time, would always result in an increased growth of connective tissue. It seems to me that the swelling caused by food allergy could produce enough lymph and blood congestion to start this connective-tissue increase; and there is no doubt that allergic states can, and generally do, last a long time. By considering this idea and making the necessary B.S.E. tests, it may turn out that we can help the early prostatic patient materially by diet restriction and pancreas feeding.

Case 5: C. G. A., age 68, seen April 24, 1937, had the urinary difficulty of the average prostatic patient. He had had to resort to the catheter at times. The prostate was enlarged; the right lobe was very hard; in fact, I suspected cancer. The radial arteries were beaded; the blood pressure was 126/86; the urine contained a marked excess of indican; the B.S.E. was minus 3.

Starches were prohibited and pancreas feeding was started, 40 grains (2.65 Gm.) a day. Five days later the right lobe was softer, the flow of urine was more free, and there was less difficulty in starting it. On May 8, the improvement had held, so the pancreas feeding was continued. On May 15 the entire picture was improved. The indican was reduced to a trace. The patient said he felt better than he had felt in ten years; that he needed no more blood tests or medicine. On August 23 he returned for more pancreas, but would not submit to any tests.

Case 6: E. D. R., age 63, on January 22, 1937, complained of slowness in starting the stream of urine. The prostate was enlarged and firmer than normal. The urine was clear, but contained an excess of indican. The B.S.E. was minus 3. Forty-five (45) grains (3.0 Gm.) of Holadin were given daily.

On March 3, 1937, there was no improvement, and the patient went east on business, returning July 19, when the prostate seemed the same. At this time he complained that his eyes tired too easily. His oculist was consulted, but reported nothing but the usual refractive error. Other treatment was tried until August 6, with no improvement, when Panocrin-A was started, 60 grains (4.0 Gm.) a day. Six days later he came to report that the congestion in the prostate had been relieved in seventy-two hours; that he had no difficulty at all in urinating; and that his eyes were very much better. He asked if he might keep on taking the Panocrin tablets, and was told that he could and should take them for a year.

I know that one or two swallows do not make a summer. I had no intention of trying to prove anything when I wrote this paper; but if I have aroused interest enough to induce several careful physicians to work with this idea, and to report their results, I am satisfied.

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PROGRESS THROUGH TRIAL

Temporary discomforts, passing depressions, war and bloodshed, penury and vice may lead the unthinking into the depths of pessimism. But those who know and who sense the inner guiding hand of the Hierarchy of Knowers are aware that the heart of humanity is sound and that out of present chaos (and perhaps largely because of it) there will emerge those competent to deal with the situation and adequate to the task of unification and synthesis.—ALICE A. BAILEY.

Progress in the Management of Pulmonary Tuberculosis

By Clarence L. Wheaton, M.D., Chicago

THE aspects of the management of cases of advanced or moderately advanced pulmonary tuberculosis have completely changed within the past decade. Formerly, prolonged rest in bed, in a sanatorium, with abundance of food and sunlight, were accepted as the standards of treatment, even in advanced cases with cavitation. But such measures did not put the lung at rest. Today, in most sanatoriums, in the great majority of cases, the affected lung is collapsed and put at rest by some surgical measure. The management of pulmonary tuberculosis has become a surgical rather than a medical problem.

Collapse therapy holds the field in the treatment of pulmonary tuberculosis for the present moment. Whether it is the final solution or only another phase in the treatment of this disease is a matter for the future to show.

Infiltrative forms of pulmonary tuberculosis, with negative sputum, often respond to hygiene and rest, but the more active surgical measures are indicated in all cavitation cases which do not show response to bed treatment limited to three months. Complete rest is also the treatment for those patients for whom surgery is contraindicated. It must also be borne in mind that there is a small minority of general practitioners who do not favor the surgical treatment of pulmonary tuberculosis and who advise against it.

Surgical Measures for Collapse Therapy

The principal surgical procedure used in the treatment of pulmonary tuberculosis is the production of an artificial pneumothorax, to secure immobilization of the lung. A number of other surgical measures are employed to supplement the pneumothorax or to render it effective. These are principally pneumolysis, interruption of the phrenic nerve, alcohol injections into the intercostal nerves, elevation of the diaphragm by mechanical pressure, etc. Some of these measures may be used independently of pneumothorax, but generally their value lies in supplementing it.

Artificial pneumothorax is the most effective single measure for the immediate control of the tuberculous toxemia that always accompanies active phases of the disease, and a patient with moderately advanced tuberculosis, treated with pneumothorax, has a chance for ultimate recovery six times as great as without pneumothorax. It has been stated that a successfully accomplished pneumothorax gives an increase in life expectancy of at least ten years, and probably more.

Pneumothorax is most effective in cases with manifestly moderate or advanced cavitation. Cavitation has generally been regarded as a terminal stage in pulmonary tuberculosis, but intensive roentgen-ray study in the early stages has shown that many cavities not otherwise observable are present. With early treatment, 25 to 30 percent of these cavities close or become obliterated. Keers,[1] in a study of 100 cases, found that the progress in cavity cases was closely allied to its situation; when the cavity was in the lower lobe it was more serious than when in the upper.

Glancing through the literature, we find that Bennett[2] states that, at present, no up to date sanatorium, whose patient population is largely composed of positive-sputum cases, is fulfilling its duty unless from 70 to 80 percent of its patients are receiving some form of compression therapy. This may be compared with the 5 or 10 percent of patients receiving such treatment ten years ago. Mayer and Dworkin[3] observe that the increasing use of pneumothorax is coincident with the greatest decrease in mortality and morbidity of tuberculosis. In New York State the death rate has dropped from 124 per 100,000, in 1915, to 51.8, in 1934, and the same story is found everywhere else that collapse therapy is in general use. Leslie and Anderson[4] report that some form of collapse therapy was used in 78.8 percent of 1,124 pulmonary tuberculosis cases in adults, treated at the Michigan State Sanatorium during the past five years; 823 patients are now discharged, 595 of whom received collapse therapy. They give the comparative results shown in Table I.

TABLE I

	Discharged Patients	Discharged Patients with Collapse Therapy
Arrested cases	47.3%	55.4%
Favorable results	67.1%	77.8%
Cavity closure	57.0%	71.3%
Closure or decrease in size of cavity	69.6%	84.2%
Sputum conversion in positive cases	59.0%	72.7%
Negative sputum	70.7%	79.3%

These writers believe that such results justify the policy of intense collapse therapy in about three-fourths of the patients admitted.

As already mentioned, frequently an artificial pneumothorax cannot be produced, owing to the presence of pleuro-pulmonary adhesions and other causes. Supplemental surgical measures are then indicated.

Pneumolysis.—In about 22 percent of all

cases of pneumothorax, the surgical severance of pleuro-pulmonary adhesions by pneumolysis, especially apicolysis, is called for, and affects a successful pneumothorax in from 60 to 65 percent of the cases in which it is done.

Phrenicectomy.—Paralysis of the diaphragm is produced by surgical interruption of the phrenic nerve, with consequent improved rest to the lung. This supplementary surgery is used quite frequently with pneumothorax. Following it, the diaphragm rises and does not pull on the pulmonary tissue. Harper[5] reports a series of predominantly severe cases of pulmonary tuberculosis in which phrenic interruption was used in conjunction with pneumothorax. The results showed that the combination of the two procedures was effective in closing 80 percent of the cavities that had failed to close when only one procedure was used. Potter and his associates report on 95 cases in which phrenic interruption was used and followed for from one to ten years. In 65 cases it was used as an independent procedure. Closure of the cavity occurred in 47 percent of these cases, and in another 31 percent the cavity was reduced in size. The cases in which it was used as a supplement to pneumothorax showed about 50 percent success. Gordon[6] reports a series of cases in which he observed good results following mechanical elevation of the diaphragm by abdominal compression.

Cavity Closure by Different Methods

McMahon and Keper[7] report the result of cavity closure in 296 cases in which different methods were used. Closure with bed rest alone occurred in 65 cases (22 percent). In 62 patients collapse therapy was instituted within two months of admission, and the cavity became closed in 43 percent of these. Of the remaining 169 cases, collapse therapy was resorted to later in 83, and cavities closed in 23 (27.7 percent). Final cavity closure was obtained in 115 cases (38.8 percent of the entire series).

As already stated, Leslie and Anderson reported cavity closure in 71.3 percent of their patients treated with collapse therapy, and in 57.0 percent of those treated by all methods, including bed rest.

When the various surgical measures alluded to fail to produce the closure of cavities, it may become necessary to resort to thoracoplasty or, in a very rare case, even to a pneumonectomy. An uncollapsed cavity produces a potential danger of severe hemorrhage, and one writer says that 20 percent of the deaths in his service were due to such causes. Urquhart[8] reviews 200 consecutive thoracoplasties, 41 of which were partial; 174 of the patients had cavities. The rehabilitation was good in 87, fair in 18, and uncertain in 14. These 119 patients, on discharge, appeared to have their disease "arrested," and were able to work. In addition, there are now ready for discharge 20; improved 27; too early to decide 5; worse 4; dead 25.

The author states: "From our results I feel that partial thoracoplasty is the most satisfactory method that we have for treating disease and apical cavities."

What I have said up to the present applies principally to unilateral pneumothorax. But, as a matter of fact, all the surgical procedures can be applied to cases of bilateral cavernous tuberculosis. Coryllos and Ornstein[9] studied 238 such cases, which they divide into three groups: In Group I, consisting of 144 cases with unilateral or bilateral pneumothorax, in all of which except 25 a pneumolysis was done on one or both sides; Group II consisted of 87 patients with pneumothorax on one side and thoracoplasty on the other; Group III consisted of 7 patients with bilateral thoracoplasty.

Of the 144 patients in Group I, 50 were sputum-negative after treatment, 77 were positive, and 17 died. Of these, 72 had pneumothorax with unilateral pneumolysis; 13 are sputum-negative, 49 sputum-positive, and 10 died. Thirty-nine (39), of the 144 had bilateral pneumothorax with unilateral pneumolysis; 24 are sputum-negative, 15 sputum-positive, and none died. Eight (8) patients had bilateral pneumothorax with bilateral pneumolysis; five are sputum-negative, 2 positive, and 1 died. Of the 25 cases in which pneumolysis could not be done, 7 are sputum-negative, 18 positive, and 4 died.

In Group II, 42 of the 87 cases are sputum-negative, 29 positive, and 16 are dead. In Group III, 4 are sputum-negative, 3 positive, and none died.

Myers and Parkman[10] report on a series of 44 cases of bilateral artificial pneumothorax studied by them. In 21 patients there was a short interval (two to four weeks) between the two pneumothoraxes; 13 are alive and 8 died. The other 23 patients, in whom an artificial pneumothorax had already been established on one side with relapse, 19 are alive and 4 dead. These authors consider that simultaneous bilateral pneumothorax is a powerful weapon and should be more widely adopted.

Other Methods of Treating Pulmonary Tuberculosis

There are a number of other methods of treating pulmonary tuberculosis which have enjoyed a certain amount of vogue or are recommended by individual practitioners in whose hands they are stated to have given good results. Only very brief allusion can be made to these.

Tess and his associates[11] think that gold-sodium thiosulphate is indicated in about 1 or 2 percent of patients, especially those with bilateral lesions or in whom collapse therapy

is contraindicated. They report good results in a small series.

Banyai[12] treated 94 cases of pulmonary tuberculosis with carbon-arc irradiation, and claims good results in 38 cases in which the treatment lasted from three to six months.

Trimble and Wardrup[13] recommend pneumoperitoneum, to elevate the diaphragm, in cases in which the surgical procedures are not applicable.

Pierre-Bourgeois and his associates[14] recommend small, repeated blood transfusions, especially to improve the general condition.

Diagnosis

A final few words should be said in regard to diagnosis. In cavity cases the early recognition of the existence of cavities is of the greatest importance in applying collapse therapy. Up to the present there has been great difficulty in detecting the presence of early cavities. This has been remedied by the invention of an instrument called the **tomograph**[15], a new type of radiographic stereoscope. In the ordinary radiograph, shadows of the ribs, blood vessels, etc., make it difficult to see the true condition of the lung. With the tomograph, layers of the lung, at previously-determined levels, can be photographed and all undesired structures excluded. The instrument is, of course, very complicated and suitable only for use in large institutions.

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Progress in Cancer Diagnosis

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IT is clearly evident that the medical profession, as a group, is deeply interested in the question of cancer. Every physician, at one time or another of his career, has been faced with the problem of fighting this baffling disease and could not help being stirred by the tragedy it so frequently brought. Moreover, not a few of physicians' own families are numbering among them the sufferers from this affliction. For this reason, every improvement in the curative methods arouses a lively interest, not only among the comparatively small group of cancer specialists, but touches the entire medical profession as a whole.

Yet, notwithstanding the fact that the medical profession has always backed wholeheartedly every organized campaign against cancer, some of us cannot help but note certain incongruities in the present general plan of struggle against this disease. Indeed, one is tempted to point to the fact that actually no such organized or rational plan of work exists.

Inadequacy of Diagnosis

On one hand we have a very vigorous and wide-reaching campaign directed to educate the lay public to the importance of seeking medical aid early in the development of this disease. "Cancer is curable in its early stages." That this message is successful in reaching the wider masses of the population is becoming more and more evident from the growing number of individuals who see symptoms of cancer in every slight ailment. But, at the present moment, what methods and what exact knowledge has the physician at his disposal to be able to dispel his patient's anxiety and fears with any certainty? With the exception of roentgenologic diagnosis, which becomes reliable only when malignant formations have already become considerably pronounced, the medical man has not been given any certain means of making a diagnosis of incipient, internal cancer, notwithstanding the enormous amount of research work which has been and is still being performed in the various institutions throughout the United States.

Our lack of precise knowledge in diagnosing cancer in its early stages, reflects itself significantly in the following figures: At least 500,000 persons in this country are afflicted with some form of cancer, according to sta-

tistics[1]. Among white persons, out of initial groups of 100 at birth, 10 males and 13 females will, under the present conditions, eventually die from some form of cancer[1]. This means that one out of every four dies of cancer, which amounts to 86.8 per 100,000[2]. Thus, in the United States, cancer ranks second only to heart disease as a cause of death. And as years go by there is hardly any reduction in the death rate, despite the progress made in roentgen-ray and radium therapy. With each year fully 150,000 persons die of cancer.

May we not attribute these figures to the fact that we are unable to detect cancer until it has reached an advanced and incurable stage? According to statistical data, one-half of the cancer deaths are due to cancer of the digestive tract (Dublin). If we add to these cases of cancer, those of the liver, lungs, and genital organs, it would seem that the majority of cancer cases ending fatally are those of internal organs[3], that is those which are difficult to diagnose at an early stage. On the contrary, external cancer (including that of the breast in females) has an insignificant number of fatalities, in comparison. Evidently, it is discovered in time more frequently, because of the lesser difficulty in diagnosis.

Obviously, it is most difficult to diagnose the incipient form of cancer of internal organs. The symptoms are not always present, nor are they by any means clear-cut. If we consider cancer of the stomach, which, while it is of a size of a penny still may be curable, we realize that, at that stage, it often does not as yet present any definite and specific symptoms[4, 5].

It is often very difficult and even almost impossible to differentiate between cancer of the stomach and a benign ulcer, and a definite diagnosis is arrived at only when the malignant growth has reached the advanced stage where the benefits of roentgen-ray treatment and surgery are already problematic.

The lack of specific symptoms and the difficulty of diagnosis of incipient cancer of internal organs is indirectly demonstrated by work done by Roussy[6]. He performed 1,000 autopsies on persons dying from causes other than cancer. Although none of the patients was suspected of having cancer, Roussy found fully *seventy individuals* with some early form of internal malignant disease.

Thus we must cope with a peculiar set of conditions, which seem to prevent us from making much headway in the control of cancer. Early cancer is curable, but we find ourselves helpless to reveal its presence. We attempt to educate the public to seek a physician's aid at the earliest sign of failing health, but we have not been able as yet to produce the equipment necessary for him to make an early diagnosis. And herein lies the great stumbling block in the way of further progress.

Necessity for Research

Realizing the obstacles in the way of an early diagnosis of cancer and the tremendous value that this diagnosis would have, the European carcinologists have been exhibiting an extreme interest in this question. Practically every European cancer institution of any size or importance works on the question of elaborating a laboratory method of diagnosis. During the past year, 79 publications appeared on the subject. All except one originated in countries other than the United States. Thus the French government maintains, in Paris, the National Prophylactic Institute, the activity of which is devoted, in part, to the study of sero-diagnostic methods of detection of cancer. The Brussels Cancer Institute, the Amsterdam Royal Cancer Institute, the Pasteur Institute of Paris, the Berlin Cancer Institute, etc., all conduct research in this direction.

In this country, however, where the conditions for cancer research are probably at their best as far as the funds, the facilities, and the high standard of technic are concerned, practically no efforts whatsoever are directed towards developing a diagnostic technic. As any one at all familiar with the literature on this subject will testify, American carcinologists devote themselves to very numerous and diversified aspects of cancer research, which, to an impartial observer, frequently seem extremely theoretical and obviously far removed from immediate practical application.

Serum Diagnosis

What is the reason for the apparent neglect of this important phase of the work? Is it because diagnostic tests are deemed to be a theoretical impossibility? We cannot frankly

1.—Dublin, Louis: *Am. J. Cancer*, 29:736, 1937. In Russia almost 600,000 persons are afflicted with cancer. (Merkoff: "Voprossy Oncologuii," 1:77, 1936).

2.—In the other countries the death rate in cancer is nearly as high. In Germany it is slightly higher than elsewhere — between 86 and 170 per 100,000 (Hecht: *Mschn. Krebsbkpfg.*, 4:360, 1936). In Russia the cancer death rate is 61.6 per 100,000 (Merkoff: 1936).

3.—Cancer of the lungs, pancreas, and prostate show significant increases in the death rates (Dublin). According to Hayashi (*Tr. Soc. Path. Jap.*, 25:742, 1935), carcinoma of the stomach held the first place among cancer deaths in Japan (53.3%). In Filipinos in Manila, however, the liver is three times as frequently affected as the stomach. (Vedder: *J.A.M.A.*, 88:1627, 1927).

4.—Ewing: The Beginnings of Gastric Cancer. *Am. J. Surg.*, Vol. 31, p. 204, 1936.

5.—Harris, Seale: The Early Symptomatology and Diagnosis of Gastric Cancer. Idem, p. 225. Gastric cancer is, as a rule, radio-resistant, and persons with gastric cancer are not even accepted for radiation therapy at Radiumhemmet, in Stockholm. Therefore, only surgical intervention might be useful. (See Pack: *J.A.M.A.*, 1935).

6.— Index Analyticus Cancerologae," 1932.

state that such is the case. Theoretically, a sero-diagnostic test for the detection of incipient cancer is feasible. We know that, early in its development, the malignant growth initiates certain changes in the organism which reflect themselves in the condition of the endocrine system, especially the pituitary and the adrenals[7, 8], and produce certain modifications in the chemistry of the blood. The fact that, notwithstanding the efforts of the European workers, no 100-percent accurate diagnostic test has as yet been developed, seems to me insufficient to bar any further investigations in this direction. And, certainly, incredulity on the part of American research institutions does not seem to be justified, without honest, practical efforts on their part. The value and the tremendous importance of this work should be a sufficient incentive for it.

It may be interesting to review a few of the diagnostic reactions which have been worked out in Europe and which seem to yield more or less encouraging results. The Klein cytolytic reaction has recently been tested by several authors and an account of the results of about 5,000 examinations has been published during the past three years. Klapp and Baumann[9] found that the accuracy of this test varied from 81.6 percent, in one series, to 96.1 percent in another series of experiments. Reimers[10], examining 438 cases, obtained 84.3 percent positive reactions, using the Klein technic.

According to Hepp's report[11], the Klein reaction for carcinoma was subjected to 700 tests, of which some were given blindly and some on blood samples accompanied by false reports. A correct diagnosis was obtained in 90.2 to 93.4 percent of the cases. Both carcinoma and sarcoma gave positive reactions and a differentiation between malignant and benign neoplasms was achieved in a large proportion of instances. It is pointed out, particularly, that in most cases the test differentiated prostatic hypertrophy from prostatic carcinoma and chronic mastitis from mammary carcinoma.

Horster, however, reported[12] less favorable results with the Klein reaction. Out of 46 cancer cases he obtained only 39 positive tests (84.8 percent), and out of 91 noncancerous cases only 83 (92.3 percent) were negative.

By the Fuchs serum proteolysis test for malignancy, correct results were obtained by impartial physicians, such as Dr. Woodhouse. In 92 out of 100 cancer cases, and in 90 out of 100 noncancerous cases.[13]

The technic of the Freund-Kaminer reaction for malignancy, which also is based on the cytolytic action, seems to give a high percentage of accuracy[14], but this reaction has the disadvantage that perfectly fresh human cancer cells must be on hand for the performance of the test, which of course is not always feasible.

The Botelho test for malignancy is often in agreement with blood-sedimentation tests in its results, according to Basnuevo and Sutter[15]. Reichel[16] reiterates that the blood-sedimentation test may be of value in diagnosing malignancy. He illustrates the prognostic value of this test by a reference to 11 patients, in whom the only suggestion of a recurrence of malignant disease was an acceleration in the sedimentation rate. The secondary growth ultimately manifested itself within the next six months.

Recently, Aron (Paris)[17] introduced a new reaction for cancer diagnosis, based on the observation that concentrated urine of cancerous patients, injected peritoneally, produced an alteration in the zona reticularis in the adrenal cortex of the injected animal. Although Aron's test has been criticized by Roussy and others, still it offers another approach to the problem of cancer diagnosis.

The Prophylactic Institute of France has developed a special sero-diagnostic technic for malignancy. This reaction, called the Vernes' flocculation test, is based on a variation in the degree of flocculation of blood serum, the flocculation being produced by the addition of small amounts of copper acetate solution.

Vernes and his collaborators have reported several thousands of examinations, with approximately 75 percent of accuracy. Isidor Arons and I have had an occasion to apply Vernes' reaction on about 50 cases of malignant disease treated by x-rays, and found it of considerable value in roentgenotherapy, especially as this test seems to give some indication of the degree of malignancy. Thus in baso-epithelioma the Vernes' test showed a rather low index (about 60 to 70), but increased to 200 to 220 in cases of highly malignant tumors. Yet the accuracy of test is considered to be about 70 to 80 percent[18].

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From this brief review of the work in this field it might be evident that a practical solution of cancer sero-diagnosis is not so hopeless as it seems to some American specialists.

What solution can be offered? In what direction should research be conducted? It is obvious that the number of different varieties of malignant disease offers the greatest obstacle to employing a single sero-diagnostic test. Therefore, the only logical solution, at the present time, seems to point to a combination of several tests, such as is often done in the diagnosis of syphilis, whereby the Wassermann test is verified by the Kahn (Sachs Georgi), Kline, or Vernes tests. A similar method should be worked out for cancer. The three most accurate tests should be combined and the technic of sero-diagnosis elaborated. If each test, individually, is only about 75 to 85 percent accurate, the three together may approach 100 percent accuracy.

Just at the present moment, it seems to me that there is no practical way by which one solution of this most important question of cancer diagnosis could be accomplished. But I have no doubt that, should some of the foremost American research institutions become sufficiently interested to direct their efforts toward this problem, an entirely new and more practical technic may be worked out. Until such time arrives and this important step is achieved, it is useless to expect any great progress in lowering the present high cancer mortality.

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Progress in Urology

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PROGRESS in a specialty cannot be separated from progress in all the branches of the healing art. It is true, however, that as various discoveries are made, one particular specialty may benefit more than another. From this standpoint the specialty of urology has been the recipient of more than its share of recent noteworthy advances. In what other specialty, for instance, has there been an achievement comparable to the results now possible by transurethral manipulations? Urology has benefited also, to a marked degree, by the recent advances in chemotherapy.

It is obviously impossible to discuss the progress in all the different phases of the specialty in an article of this length. My desire is rather to discuss those of the recent advances which I have found to be of practical value in the practice of the specialty.

To clarify the material it has been divided into two subjects: First, medical therapy, and second, surgical therapy. Before proceeding with the discussion of these two subjects, there are two diagnostic procedures which should be mentioned briefly. *Intravenous pyelography* has become fairly well stabilized as to its indications and limitations, and is an invaluable diagnostic procedure, as an adjunct to, rather than a replacement of, retrograde pyelography. One of the most valuable advances in diagnostic procedures is the *cystourethrogram* described by Flocks[1]. X-ray visualization of the prostatic urethra and bladder combined, according to his technic, has aided greatly in the diagnosis of bladder-neck pathoses.

Medical Therapy

Urinary Antiseptics

In the realm of urinary antiseptics, the past two or three years have seen the development of mandelic acid and sulfanilamide. A little over two years ago, Rosenheim[2] announced that mandelic acid would do, in a direct way, what it had been hoped to do with the ketogenic diet and beta-hydroxybutyric acid. Many patients were unable to tolerate the ketogenic diet to the extent necessary to get the proper acidification of the urine. Ammonium mandalate, in the form of a syrup containing 3 Gm. of the acid to the dose of one-half ounce, is commonly used. It also may not be tolerated by the occasional patient.

Helmholtz[3] states that the bactericidal effect of this form of therapy on *Streptococcus fecalis* is closely comparable to its effect on the *Escherichia coli*. This makes it a valuable drug, as this organism is the most resistant to sulfanilamide of organisms commonly found in the urinary tract.

Although much remains to be learned about **sulfanilamide**, it has already proved to be the greatest advance in chemotherapy since Ehrlich's announcement of "Salvarsan," in 1910. Domagk[4], in 1935, demonstrated that a certain azo dye, synthesized in 1932 by Meitzsch and Klarer, exerted a selective action on streptococcic infections in mice. Trefanel, Mitti, and Bovet[5] proved that sulfanilamide, a closely related compound, was equally effective.

In 1937, Helmholtz[6] reported a series of observations and stated that "urine of patients taking Prontylin develops definite bactericidal power for the organisms which are commonly found in infections of the urinary tract." Buchtel and Cook[7], a few months later, reported that sulfanilamide had "proved greatly superior to any other antiseptic in the treatment of prostatitis, urinary infection associated with prostatitis, and gonorrhea."

I have used sulfanilamide in 30 cases of acute gonorrhea, treatment having been instituted between the first and fifth days after the onset of symptoms. There were no complications in any case while under treatment with the drug. One patient developed acute prostatitis on the seventh day after treatment was instituted, but later confessed that he had ceased taking the drug on the third day, believing himself to be cured. Sulfanilamide therapy was started again and the prostatitis cleared up in three weeks. Sixteen (16) of the 30 patients were considered clinically cured in from one to three weeks, without the use of any other type of treatment. These cases have been followed for a minimum of three months without recurrence. In the other 14 cases it was necessary to use urethral injections. There were no alarming reactions to the drug. A few patients developed malaise, drowsiness, and headache, so that the drug was discontinued for two or three days. Two patients of a larger group under treatment for chronic gonorrhea and urinary tract infections, could not tolerate the drug because of severe gastro-intestinal upsets.

The dosage used in acute gonorrhea is that generally recommended—80 grains (5.3 Gm.) the first twenty-four hours; 60 grains (4.0 Gm.) daily for the next two days; and then 40 grains (2.65 Gm.) daily for not more than two weeks. If the patient tolerates the drug, he should continue through this regime, even though he is symptom-free in three or four days. If, after one week, there is still a urethral discharge, local treatment, consisting of anterior urethral injections, should be instigated, and can be started without much fear of causing complications.

Reports of various reactions to this drug have already appeared in the literature[8, 9, 10, 11, 12, 13], and there will doubtless be more.

Helmholtz[3] also demonstrated that sulfanilamide is more effective in an alkaline than in an acid urine. This makes the drug especially valuable, as it is sometimes difficult to acidify the urine when organisms of the *Proteus* group are the cause of the infection.

The mode of action of the drug is not yet entirely clear. Bliss and Long,[14] after experimental work on mice, state: "While it is our belief that the decrease in the number of free hemolytic streptococci in the exudates represented a bacteriostatic and phagocytic effect, it could be argued that sulfanilamide either protects the phagocytes from the noxious effects of the streptococcic infection or actually stimulates them to increased phagocytosis."

The tragic occurrences following the marketing of the miscalled "Elixir" should in no way detract from the proper use of sulfanilamide. According to Geiling, Coon, and Schoeffel[15], experiments indicate the diethylene glycol, which was used as a solvent, to be the toxic agent.

Undescended Testis

Rony[16] divides cases of cryptorchism into two groups: Group A, those in which there is no additional pathosis of importance—the endocrine system is normal, and failure to descend may be due to developmental errors or to local anatomic causes, such as adhesions, developmental error, etc. In this latter subgroup, descent at puberty will not occur. In the former sub-group, descent at puberty frequently takes place under the functioning of the anterior pituitary. Group B includes those cases in which examination reveals more or less marked signs of hypogonadism. In this group late spontaneous descent rarely occurs.

The nature of the case is not as a rule recognizable before puberty. Histologically, the undescended testicle shows a picture similar to that of a normal prepubertal scrotal testicle. Therefore, according to Rony, it is not necessary to treat these cases before puberty. If cryptorchism persists in the presence of pubertal changes, hormone therapy is indicated. Failure of this therapy may be considered as evidence of anatomic obstruction and an indication for surgical interference.

In treatment, injections of pregnancy urine gonadotropic hormone are given daily or every other day, subcutaneously or intramuscularly, 100 to 300 rat units at a time. If 10,000 rat units fail to produce change, further trial is not likely to succeed. In cases treated surgically, Spence and Scowen[17] advise postoperative hormonal treatment.

Molitch[18] agrees with Webster[19] that treatment should begin at as early an age as possible, to prevent destruction of the spermatogenic function of the testis.

Mimpriss[20] reports the treatment of 20 cases, with descent in 6 cases and hypertrophy of the external genitalia in 19. He feels, therefore, that this treatment should be used only in bilateral cases with subnormal genital development. Rony[16], however, states that enlargement of the scrotum or penis beyond normal for the patient's age is not produced.

Thompson *et al*[21] report the results in 18 patients treated by anterior-pituitary-like substance. Descent occurred in 4 patients, and in all four the testis was in the inguinal canal before treatment. They conclude that, in the majority of cases, operative treatment will be necessary, but should be preceded by from four to six months of treatment with anterior-pituitary-like substance.

Surgical Therapy

Enlargement of the Prostate

The approach to the problem of transurethral prostatectomy has never been better

stated than by Alcock,[22] in 1932, when he said, "I did not doubt the practical value of the method if properly executed, but I did question my own ability to turn the trick." This represents the present-day attitude towards transurethral prostatectomy. The procedure is proved. The ability of the individual operators to perform transurethral prostatectomy varies more widely, probably, than in any other recognized surgical procedure. In the hands of an Alcock, or Kretschmer, or Nesbitt, all the cases can be treated transurethrally in which the resectoscope can be introduced into the bladder. The earlier idea that one could excise a piece here and there from an enlarged prostate and expect good results, has had to be abandoned. True, an occasional good result did follow that practice, but it was the exception rather than the rule.

In recent years we have come to realize that an amount of tissue, comparable to the tissue removed at open operation, must be removed transurethrally to insure a good result; so the procedure may properly be called transurethral prostatectomy. The problem of which cases shall be operated upon transurethrally and which subjected to open operation is, therefore, entirely dependent on the individual surgeon, and it is quite likely that an operator, who this year feels that about fifty percent of the benign enlargements of the prostate are suitable for transurethral prostatectomy, may feel, a year or two hence, that from seventy-five to eighty percent are suitable. I must confess that I have not passed the seventy-five to eighty percent stage as yet.

The beautiful piece of work done by Flocks,[23] on the blood-supply of the normal and enlarged prostate, has a practical application in transurethral prostatectomy.

There is still no satisfactory treatment of carcinoma of the prostate. Young describes a radical operation for this condition, and perhaps the same reasoning may apply here as in consideration of carcinoma of the bladder. There is a difference, however, in that the bladder case may live for one or two years in constant agony, whereas the prostate case may live five or even ten years in comparative comfort. The present practice of resecting as much of the gland as possible, when obstructing symptoms occur, is certainly an advance over the former cystostomy under similar circumstances.

Renal Tuberculosis

Surgery continues to be the treatment of choice in unilateral renal tuberculosis. Wildbolz,[24] in 1928, after following a series of 341 cases of renal tuberculosis operated upon ten years or more previously, found 59 percent alive, and all but three of them had remained cured of their tuberculosis. About 15 percent of the deaths were due to intercurrent disease. He found that, except for three cases, the accompanying tuberculosis of the bladder had healed completely within from two to five years after nephrectomy, if tuberculosis of the remaining kidney did not prevent it. In a series of more than a thousand cases, he found a definite bilateral involvement in only 12 percent. Wildbolz believed that a normal kidney could excrete tubercle bacilli (the socalled "tuberculous bacilluria"), but most authorities in this country agree with Medlar, [25, 26] who proved that excretory bacilluria does not exist without ulcerative tuberculous lesions being present in the kidney.

The question as to whether or not tuberculous lesions of the kidney ever heal spontaneously has not been proved one way or the other. Non-surgical treatment of unilateral renal tuberculosis is, therefore, not indicated in view of our present knowledge.

Mathe,[27] in 1926, reviewed 4,698 cases of unilateral renal tuberculosis, and found that, in 12 percent, it occurred in children from one to twenty years of age. In 0.43 percent (20 cases), it occurred in infants from one to five years of age. He stated that autopsy statistics showed the incidence in children of from one to twenty years to be 25 to 30 percent, and emphasized the need for keeping this possibility in mind in urinary tract conditions in childhood, so that they may have the necessary treatment early. Treatment is the same as for adults.

Campbell[28] stated that, in his experience, surgical renal tuberculosis has been the underlying lesion in about one out of every sixty-five cases of "chronic pyelitis."

Carcinoma of the Bladder

There has been, in recent years, a tendency towards more radical treatment of carcinoma of the bladder. This tendency must be labeled as definite progress. Anyone who has watched the course of patients with carcinoma of the bladder treated by electrocoagulation, x-rays or radium, will not question this statement. The best one can hope for in patients treated by these methods is the prolongation of an unbearable existence. If the condition is operable it should be operated upon, even though complete cystectomy following transplantation of the ureters is necessary. Surely we are justified in accepting any degree of operative risk in dealing with a condition which is almost surely fatal if not treated surgically. The tendency of carcinomas of the bladder to metastasize only rarely to distant parts, makes the surgical treatment even more justifiable.

Eisenstadt[29] states that resection or partial excision of the bladder wall, when possible, is the treatment of choice, and that total cystectomy, following transplantation of the ureters, is gaining favor.

Crowley[30] reviewed 902 cases of carcinoma

of the bladder from the Carcinoma Registry of the American Urological Association. He found that only ten percent of the carefully studied and autopsied cases showed metastases. He thought the future trend in surgery of these conditions would be to adopt more and more radical procedures.

Counseller and Braasch[31] stated, "Whenever the lesion can be completely removed surgically, by either segmental resection or excision, this is the operation of choice."

Hinman[32] and Quinby[33] discussed cystectomy and Hinman described his technic in considerable detail.

In inoperable cases, one of the other three methods of treatment — electrocoagulation, x-rays or radium—or a combination of them with cystostomy, may give some palliation.

Papilloma of the Bladder

The development of the Stern-McCarthy prostatic electrotome has simplified greatly the removal of benign growths from the bladder. In many instances it will be possible to sever the pedicle of the tumor from its bladder attachment with the cutting loop and remove the papilloma in toto by suction.

Summary

In conclusion the following points should be emphasized:—

Both mandelic acid and sulfanilamide have a place among the urinary antiseptics; sulfanilamide, although much remains to be learned about it, has already proved to be an invaluable drug in the treatment of infections of the genito-urinary tract.

The treatment of undescended testis should begin not later than puberty. Hormone treatment should be given a thorough trial, but if not successful, surgery should be utilized promptly. Postoperative hormone therapy is justified.

The decision between transurethral and open operation for benign enlargements of the prostate, depends on the individual operator. Each operator should utilize the type of treatment which, in his hands, gives that particular patient the best chance.

Surgery continues to be the treatment of choice in unilateral renal tuberculosis.

The tendency towards more radical treatment of carcinoma of the bladder is encouraging.

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FOR OFFICE THERAPY

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Progress in Cancer Treatment

(Ultra-Short-Wave Therapy)

By Frank T. Woodbury, M.D., New York City

THE open-minded clinician, as well as the agonized patient, will both welcome enthusiastically any agent which will cure cancer, regardless of how that cure may be affected. It will be the same to them whether the cancer cells die of poisoning or from starvation; by overheating or by electrochemical changes.

Just how the x-rays or radioactivity affect the living cell is not as yet perfectly understood, though we know it is not by conversion into heat, yet we use them intelligently for cancer treatment.

The debate as to whether radio-frequency treatments, with waves between 15 meters and 50 centimeters, should be considered as purely thermal treatments or the exhibition of some other form of energy (mechanical, electrochemical, electrical), has arisen because of the inability of those who are familiar with electropyrexia to see any other effects than those of heat.

It may be well to consider the present evidence on the question as it relates to cancer therapy.

We have had our hopes of a cancer cure raised to the zenith of expectancy by the advent of the roentgen rays; then by the advocacy of massive doses; and again by the discovery of radioactivity with its three forms of energy, alpha, beta, and gamma rays, only to suffer disappointment, which, however, never reached the nadir of despair, as each in turn failed to be 100 percent curative.

From this experience, we have learned that any given cancer may vary in resistance or vulnerability to these agents, depending upon its origin or phase of cell division. We recognize radiosensitive and radioresistant cancers, gastric adenocarcinoma being particularly radioresistant.

An active search for a resolving agent which would render any and all cancers readily vulnerable to x-rays or radioactivity rapidly developed.

In the search for a vulnerary, heat was first thought of, particularly as we were able, by diathermy, to heat otherwise inaccessable organs. Heat causes an active hyperemia and this was found, by Gottwald and Schwartz[1], to increase the vulnerability of cancer to x-rays. We may note, in passing, that, in addition to the local hyperemia, with increase of enzymes, hormones, oxygen, reticulocytes, and phagocytes, the increase of temperature speeds up chemical action, such as enzyme digestion, and also increases the motility and the aggressive attack of phagocytes. Transudation of blood, with accompanying thromboses, also occurs, causing necrosis from starvation.

Diathermy, however, proved disappointing[2]. Then diathermy was combined with x-rays[3] and somewhat hopeful results were obtained, but not so striking as to cause its general adoption.

Schereschewsky[4], who first employed radio-frequency in experiments upon living, in-

oculated mouse tumors, attributed the high degree of his success to the heating of the transplanted tumor mass. He noted, but evidently deemed it unimportant, that the most successful results were obtained by wavelengths of 4.4 and 4.5 meters.

Pflomm[5] obtained rapid involution of implanted Jensen mouse tumors with a wavelength of 4.5 meters, and Reiter[6, 7] emphasized the especial effectiveness of a wavelength of 3.5 meters upon cancer. In all these cases a heating intensity of radio-frequency was employed. Where necropsies were done, the tumor mass was found to be the seat of marked capillary hyperemia, with free transudation of blood around the tumor mass and an intense infiltration of phagocytes, with thromboses and necrotic foci of the tumor.

Roffo[8], implanted rat sarcoma after irradiating with 0.58 to 6.75 meters, and obtained only 40 percent of successful grafts, as compared with 100 percent successful growth with non-irradiated implants. Where the irradiated implants survived, they grew much more slowly than the untreated grafts.

The combination of radio-frequency and radioactivity (alpha, beta, and gamma rays) was first studied by Hill[9], who used nonthermal intensities of radio. He found that the combination created vulnerability, whereas either agency alone did not.

Fuchs[10] used x-rays several hours after nonthermal radio-frequency, in doses of 20 minutes with a wavelength of 15 meters and a skin-electrode distance of 10 cm. He reported a cessation of tumor growth and no skin reaction. He urged further trial of this combined technic by others.

Arons and Sokoloff[11], following this suggestion of Fuchs, have treated 30 cases of malignant disease (1936 and 1937), of both radiosensitive and radioresistant types. They also treated four cases of postoperative suppuration which had resisted other treatments. They found that both types of tumors regressed markedly, with improvement in general health as well as in local symptoms. Frequent reexaminations of each patient were made, as to general status, blood changes, etc. Vernes'[12] flocculation test (for cancer) was also made.* They noted also a great reduction in pain and in skin reaction and, in the suppurative cases, they obtained distinctly satisfactory results.

The x-ray treatment was given by the Coutard technic[13], over several fields and in daily, divided doses, using as a filter of 1 mm. of copper and 2 mm. of aluminum, with a skin-target distance of from 50 to 70 cm.

The radio-frequency apparatus gave a wavelength of 6 meters at 250 watts. Circular disc electrodes of rubber-insulated metal, 10 cm. in diameter, were employed at a skin-electrode distance of 7 to 12 cm. The shorter distance was maintained over the tumor region to increase the concentration of the field. The most encouraging results were obtained with cancer of the stomach which, as a rule, has so far resisted any treatment by x-rays. They have reported five such cases, treated by combined technic with good results.

Owing to the brief time since the results were obtained, Arons and Sokoloff disclaim arriving at any definite conclusions, but they remark, "However, observing 30 cases for a period of one year, our impressions are that the method is of value."

Undoubtedly the results obtained by these workers mark a most hopeful advance in the progress of cancer therapy. They also emphasize the fact that radio-frequency, in nonthermal intensities, produces decidedly positive results, due to the vasodilatory effect of ultrashort waves increasing the radiosensitivity of tumors. In fact, Arons and Sokoloff state that the biologic premises of their work were based upon the nonthermal properties of radio-frequency.

Holzer[14], from the physicist's standpoint, has stated that there is a point energy effect, as distinguished from a point heating effect. It has been demonstrated that nonthermal radio-frequency has marked vasodilating effects. Hallberg[15] has demonstrated that radio-frequency will reverse the polarity of different parts of the body and, after long exposure, will lower the blood pressure.

It is a common experience of all workers with nonthermal radio-frequency to obtain such decided relief, even from agonizing pain, as to obviate the use of analgesic drugs. They recognize also its bactericidal powers in vivo. Liebesny[2], especially inveighs against the production of heat in radiotherapy, as being decidedly harmful in many conditions.

Sokoloff also discovered[16] that when x-rays, given in doses usually sufficient to cause sterilization by suppression of the ovarian function, were combined with nonthermal radio-frequency, sterilization was not accomplished. This observation confirms and ratifies Steinach's use of nonthermal radio-frequency as a rejuvenation measure, for which he has abandoned gland transplantation.

Radio-frequency, in less than 6-meter wavelengths and in microwatt intensity, has been found to have a positive effect upon metabolism. Hallberg[15] exposed a sleeping subject to it for an hour and noted a rise in temperature of one degree Fahrenheit. A physician writes[16] that he has obtained very satisfactory results in the treatment of obes-

*Vernes' serotest is based on flocculation of serum mixed with copper acetate in various solutions. An index above 50 indicates the presence of malignant disease.

*They are now using shorter wave lengths.—F.T.W.

ity and localized adiposity, probably due to the effect of the ultrashort waves on the endocrine system.

The contribution of Arons and Sokoloff to cancer therapy should arouse those who have refused to see any but heat effects in radiotherapy, to an active, unprejudiced and wholehearted investigation into the nonthermal effects of radiofrequency.

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NOTES AND ABSTRACTS

Preoperative Preparation of the Conjunctival Sac by Ultraviolet Rays

ULTRAVIOLET irradiation is successful in nearly every case in rendering the eye bacteriologically safe for operation, even when the other methods fail. The pathogenic organisms appear to be more susceptible to the rays than the nonpathogenic, as evidenced by the infrequency of a resultant sterile culture. Some results suggest that the pathogenic organisms are only temporarily attenuated or inhibited, but that when this has been achieved operation may be safely undertaken. It is inadvisable to combine this treatment with the use of antiseptic lotions, as the eye appears to be intolerant of such vigorous measures.

The apparatus used is the modified general phototherapy mercury-vapor lamp. It consists of a lamp mounted on a movable stand in front of a hemispherical housing, over the aperture of which is fixed a flat aluminum disc, pierced in the center by a director tube.

The patient's head is secured in the usual form of chin and head rest, and the lids are everted and held so as to completely cover the cornea. The routine adopted is to give six doses of five minutes each, at two-day intervals, irradiation being carried out at a distance of about twelve inches; the number of doses is increased if necessary. It is quite as satisfactory to use the concentrated beam of the local phototherapy apparatus, with a suitably adjusted aperture.—FRANK W. LAW, M.D., in *Proc. Royal Soc. Med.,* 28:192 (Dec.), 1934.

Dangers in Hyperpyrexia

MANY hospitals throughout the country have constructed home-made cabinets, with electric light bulbs, steam, infrared attachments, hot air, and other agencies, in an attempt to throw heat into the patient's body from the outside.

The history of these attempts is as follows: A patient, without any preparation whatever, is slammed into one of these cabinets and the current turned on, with an occasional reading of the temperature. When this temperature reaches 105° F., he is considered "done," and the current is shut off, and the attending intern trusts to God, that the patient's temperature will not go much higher. Everything goes well for about three treatments, then, in the fourth treatment, for unknown reasons, the patient's temperature shoots up to 107°, 108° or 109°. He becomes comatose, all reflexes disappear, he has a death-like pallor, no pulse, and he passes out. Then the hospital junks the apparatus. This is the exact history of what has happened in six hospitals that we know of on the Pacific Coast.

A specially-trained nurse should be in attendance continuously. She should be highly trained to detect minute changes taking place in the patient from minute to minute, and to be able to administer drugs as may be required. A physician who is trained in this specialty must be near at hand. In 2,000 cases our death rate has been nil.—F. H. REDEWILL, M.D., in *Urol. & Cut. Rev.,* Apr., 1937.

Frostbite

SEVERAL physical agencies are of proved value in the treatment of frostbite. The use of diathermy, followed by vigorous application of the Oudin current in chilblains, has been effective.

For the treatment of the feet and toes, the foot-plate and cuff-above-the-ankle applications are used, and during the treatment luminous heat is applied for at least one-half hour. The current should produce a comfortable warmth and treatment should be given daily until there is improvement.

Successful treatment of frostbite with short-wave therapy has also been reported.

Good results with local ultraviolet irradiation from the air-cooled lamp, with the production of a second-degree erythema, have been reported. The treatments are repeated on the subsidence of the reaction.

Recent reports on the use of passive vascular exercise emphasize its efficacy in preventing the progress of frostbite to its terminal stage of gangrene.—THEODORE KAPLAN, M.D., in *A. J. Surg.*, May, 1936.

Injection Treatment of Varicose Veins

IN injecting varicose veins, remember that *any solution that is strong enough to sclerose a vein, will produce a slough*, if injected perivenously. Quinine hydrochloride and urethane may result in cinchonism (dizziness, ringing in the ears, palpitation, and gastro-intestinal upsets), syncope, and even death. If used, not over 1 cc. should be administered. Sodium morrhuate may cause gastro-intestinal upsets and desquamative dermatitis. Sodium salicylate (20 to 40 percent solution) gives a marked cramp and possible salicylism, (generalized rash; gastro-intestinal upset).

Sodium chloride (15 to 30 percent solution) is not toxic and causes effective obliteration, but does produce a cramp.—A. A. SCHMIER, M.D., in *A. J. Surg.*, April, 1937.

Roentgen Rays and Radium in the Treatment of Inflammatory Processes*

MANY physicians are not aware of the favorable influence of radium and x-rays on the various forms of acute and chronic inflammation. *There is no question of injury to the skin* or of the gastric upsets observed following radiation therapy for malignant disease, as the doses used for inflammatory processes are quite small; the more acute the infection, the smaller the dose.

Many varieties of acute inflammations yield rapidly to a small dose of roentgen rays, including carbuncle, abscess, cellulitis, paronychia, acute adenitis, and erysipelas. When irradiated early, many lesions do not suppurate; therefore the treatments are most effective when other methods of treatment are least effective. *Pain is often relieved in a few hours.* Pneumonia often responds to early roentgen-ray therapy.

ARTHUR U. DESJARDINS, M.D.
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*Radiol., Oct., 1937.

Observation in Medicine

THE basic catechism of the physician should be anatomy and physiology, and not "How does the other man do it?" Unfortunately many practitioners endeavor to duplicate another's work and, without using basic reasoning, are prone to copy without originality and criticize the end result because of a lack of understanding.

The true physician is the individual who takes an active interest in his patients and at no time "practices" medicine, but *studies* it, making correlations from his own and others' past experience.

There are many abnormal anatomy problems which confront the physician, and he is in an ideal position to aid both himself and his fellow practitioners by making his own observations and placing them in such a form that others can profit by them.

The embryologic development and glandular growth of the individual is too often overlooked, and as a result we are prone to think of treatments and symptoms from a normal rather than an abnormal standpoint. For example, the inguinal canal has numerous variations which make certain groups of individuals excellent patients for surgical or injection treatment, while abnormal variations in others make them unsafe risks.

The prostate gland is composed of from twelve to fifteen tubules that are contiguous with the lining of the urethra and are separated by interstitial tissue, which makes certain types of prostatic disorders quite bothersome, although their symptoms do not conform to any of those found in the authoritative textbooks.

The venous drainage from the left testicle is into the left renal vein, while that from the right testicle is into the iliac vein, making a varicocele merely a matter of enlargement in the left side, due to renal disorders or pressure on the pampiniform plexus, while on the right it indicates an infective or traumatic process, usually in the prostate.

The variations in the lymphatic return from the right tunica vaginalis make hydrocele a comparatively normal condition on the right side, and indicative of an infective or traumatic process on the left.

The mammary gland, embryologically, has

variations in the fifteen to twenty lactating tubules, which result in inversions or abnormalities of the nipple or variation in the size and appearance of the breast, usually on the left side.

The abnormal return of the superficial veins from the leg is the origin of the tendency toward inherited predisposition to varicose veins, which is passed on from generation to generation.

These are but a few of the observations a practitioner should be familiar with and utilize in solving the problems confronting him daily.

In understanding the complete and perfect structure of the body, as well as the mechanism with which it functions, one is enabled to observe it from a normal view, and then be on the lookout for abnormal formations.

The office practitioner as a research worker has ample facilities at his fingertips to approve or discredit any of the treatments which spring up, and by rationally evaluating them, with his own understandings, can accept or discard them by rational reasoning.

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Chicago, Ill.

Short-Wave Diathermy in Nasal Sinus Infections

THE present status of short-wave treatment in nasal sinusitis may be summed up as good in acute sinusitis, and of moderate value in chronic sinusitis. The electrodes should not be applied close to the head, or surface heating alone will result. My preference is for a six-meter wavelength, with a minimum of 300 watts and the use of air-spaced electrodes. I also prefer the lateral application of electrodes, to obviate difficulty of application. The ears must be bound closely to the sides of the head, so as not to overheat them, and the electrodes placed parallel to the facial planes of the cheek bones.—CONRAD GALE, M.D., in *E.E.N.T. Monthly*, Oct., 1937.

Improved Gastric X-Ray Examination

BY the use, in roentgenography, of "Rugar", a colloidally suspended barium solution, the gastric mucosa is brought into relief and small lesions (ulcer, carcinoma) are visualized that would have been difficult or impossible of diagnosis with the standard heavy meal. The barium is diluted with water in proportion of 1 to 15, and given in one meal of sixteen ounces. The patient is then instructed to lie alternately on the right and left sides for 15 minutes, during which time the barium settles out and most of the fluid is evacuated. Visualization is improved by the administration of Seidlitz powders, drinking each powder separately to insure maximum gas formation, and requesting the patient not to belch. This procedure is an adjunct to the standard heavy meal for the difficult cases and should not be used as a routine.—ROBERT ARENS, M.D., and SIDNEY MEISROW, M.D., in *Radiol.*, July, 1937.

[Another advantage of the light solution and gas inflation is that small diaphragmatic hernias (paraesophageal) can be demonstrated.—ED.]

Diathermy in Biliary Tract Disease

SIXTY-EIGHT (68) percent of 100 patients with non-calculous gallbladder disease were relieved by the use of conventional diathermy treatments over the liver and gallbladder areas. The treatment was given for 35 minutes, with a range of 300 to 1000 milliamperes, until the patient felt a sense of warmth, followed by the intraduodenal instillation of two ounces of a 25-percent warm solution of magnesium sulphate. Duodenal aspiration of bile, through a duodenal tube, was carried out during the treatment. Such treatments were repeated two or three times weekly, for 12 treatments.—HENRY A. RAFSKY, M.D., in *Arch. Phys. Ther., X-Ray, Rad.*, Apr., 1937.

Many authorities agree that the duodenal tube is of some value in diagnosis, but very little in treatment. Magnesium sulphate can be given by mouth, with the expectation that it will pass into the duodenum. If bile will enter the duodenum and reach the tube, it will also pass out through the bowel.—R. G.

Uses of Short-Wave Therapy

GENERAL points in short-wave technic are:

1.—In *acute conditions*, do not produce an embarrassing hyperemia in an area already congested; therefore, use low energy, low wave-length, short time (five to ten minutes), and frequently repeated treatments (two or three times a day). In very acute febrile conditions, the effect on the patient may be one of profound exhaustion. This passes off very quickly, with a marked drop of temperature in a few hours.

2.—In *subacute and chronic conditions*, one may use more energy for longer periods (twenty to forty minutes), with longer intervals between treatments. Do not terminate treatment too soon, as improvement has been noticed after the whole course has been given, and even six weeks later.

These conditions were helped by short-wave therapy, except as noted: The "com-

mon cold"; acute upper respiratory infections (laryngitis, pharyngitis, bronchitis); chronic bronchitis; acute tonsillitis and quinsy; chronic tonsillitis; asthma (no benefit); bronchiectasis (no benefit); acute pleurisy (much benefit); sinusitis, both acute and chronic; traumatic injuries and fractures (increased circulation and improved muscular function); acne (no improvement); herpes zoster (relieved pain); rheumatism; osteo-arthritis (relieves pain, but does not cure); fibrositis (very good); sciatica and neuritis (poor); carbuncle (pain quickly relieved); lymphangitis with cellulitis. The treatment of pneumonia offers great prospects.—J. KALMANSON, M.D., in *Brit. J. Phys. Med.*, March, 1937.

X-Ray Tonsillectomy

FROM 80 to 90 percent of those suffering with recurrent attacks of tonsillitis, nasopharyngitis, and laryngitis have been relieved by roentgen-ray treatments. The enlarged tonsil gradually recedes until it disappears between the pillars, and the crypts empty themselves and become normal. Islands of infected lymphoid tissue, together with the angry redness of the nasopharynx, disappear with this method of treatment.

The technic is simple: The rays are applied at each sitting through two areas, one over the left side of the neck and one over the right. They are never applied through the open mouth. The rays used are created with 4 milliamperes and 140,000 volts, passed through 0.1 mm. of copper and 3 millimeters of aluminum, and finally into the patient, who is placed 30 cm. from the target; 200 roentgen units are then given, and repeated on the other side. Not over 8 to 10 of these treatments need be given.—J. THOMPSON STEVENS, M.D., in *Arch. Phys. Ther., X-Ray, Rad.*, Aug., 1937.

BOOKS

Todd: The Thinking Body

THE THINKING BODY. A Study of the Balancing Forces of Dynamic Man. *By Mabel Elsworth Todd, Teachers College, Columbia University, New York City, N.Y.: Paul B. Hoeber, Inc., (Medical Book Department of Harper & Brothers). 1937. Price, $4.00.*

This is one of the most unusual books your reviewer has had the opportunity of reading. It offers to physicians, physical therapists, and physical educators, workable suggestions on how to help their patients use their bodily equipment most effectively. Physical and nervous energy can be conserved by this method of acquiring bodily balance in accord with the principles of mechanics.

Throughout, the text bristles with thought-provoking statements: "No animal has time to stop for diarrhea in the midst of a fight. In such extreme emotional drives as those involved in fighting or escaping, no demand must be made from visceral organs; their activities must be inhibited"; "Next to the heart, the diaphragm is the most continuously active of all body structures"; "We are seldom entirely idle when standing or sitting. Generally we are using our hands and focussing our eyes on some close activity, such as reading, typing, etc. Such activities, tied up with mental concentration, are largely 'unnatural' and produce attitudes of strain, which the body automatically attempts to counteract with persistent movements of the trunk and legs." The author endeavors to show how the mechanical principles of balancing, walking and other activities can be carried out with less fatigue and increased efficiency.

Abramson: Electrokinetic Phenomena

ELECTROKINETIC PHENOMENA AND THEIR APPLICATION TO BIOLOGY AND MEDICINE. *By Harold A. Abramson, M.D. (American Chemical Society Monograph) Pp. 331. New York: Reinhold Publishing Corporation. 1934. Price, $7.50.*

Owing to the highly technical and logarithmic treatment of the subjects discussed, this book has not received the attention it deserves from the physician and the physical therapist.

If, however, the reader will industriously concentrate upon the non-mathematical and more simplified portions of the text he will, eventually, slowly but surely, be amply rewarded.

Only by at least a partial understanding of the simpler physics and chemistry involved can the essential importance of "surface phenomena" of biologic processes be adequately appreciated.

The permeability and semi-permeability of cell membranes, and the transport of solids and of liquids within the tissues, are dependent primarily upon the dissociation of substances or electrolytes into ions. Such dissociation or ionization, however, involves far more than the simple transport of cations and anions toward their respectively attracting poles.

Only in such degree as the student will study and understand the complexity of the factors affecting and affected by electrokinetic and electrochemical potentials; electrophoresis; electroosmosis; streaming and sedimentation potentials; isolectric point; adsorption; solid-liquid and liquid-liquid interfaces; and numerous other more or less involved electro- and biochemical phenomena, can the interrelation of all these vital processes be theoretically and practically comprehended.

J. E. G. W.

A LIVING FOR THE DOCTOR

(The Business of Medicine and the Art of Living)

ASSOCIATE EDITOR

RALPH L. GORRELL, B.S.M., M.D., D.N.B

The Amateur Spirit*

THE amateur spirit is wholly admirable. It is a lineal descendant of the old self-denying religious spirit that seems to be passing from the earth. It means that men and women are still to be found who are willing to devote time and effort to doing things without pay, merely for the recompense of work well done.

The old monk, sitting alone in his cell, spending all the days of a lifetime on the work of producing a beautiful hand-illuminated book, was your true amateur. He received no pay for his work, yet its excellence has never even been approached in later, commercial-minded times.

The reason why the golden age of sculpture, painting, music, bookmaking is now several hundred years in the past is that the attitude of the artisan has been changing. His love for his work and desire for its perfection have been supplanted in increasing measure by love for money and desire for accumulation. This tendency marks the decline of the amateur spirit.

Commercialism, if we may so term the spirit in opposition to amateurism, is typified by the great labor monopolies of the present day. Irrespective of what abuses they were originally designed to check, there is no principle in them today save the single one of enriching self at the cost of neighbor. The present-day labor situation is a game of grab. Questions of equity and human rights no longer enter into it. The labor union, government fostered, has resulted in a monopoly of power that is being used for private gain. The modern labor union is the successor-in-title to all the evils previously ascribed to "capitalism." All that the working man has ever grown to despise and hate in "capitalism" has now passed into the armory of laborism. It is the antithesis of the amateur spirit.

It is not too much to say that personal gain is the strongest motive working on the minds of the people today. That is a terrible situation to contemplate.

Creative ability, productiveness, mental good health, harmony, peace and happiness are not dependent upon the piling up of riches beyond one's needs, but they do come with the amateur outlook.

What the world needs today, far more than an increase of pay, is a set of principles. A good old-fashioned code of morals would stand us in better stead today than any scheme to provide easy incomes for unwilling workers.

One of the things that money cannot buy is loyalty, and the capitalist has now found that out, to his cost. There is no such thing any longer as loyalty on the part of the employees of a business to its management. They are loyal to the hand that feeds them, and that is the hand of the labor leader who gets pay increases for them. Whose fault is that? Perhaps the capitalist has learned his lesson too late, in the bitter and costly school of experience.

The remedy for the *lex talionis* is the law of love. For immoderation, moderation. For the lust for power and greed for gain, self-forgetfulness. For hate, toleration. For envy, broader understanding.

All you possess, said Emerson, is what you have given away.

There are no classes. The teaching that mankind is divided into classes which are mutually antagonistic is the most vicious thing ever devised by the mind of man. The capitalist of today is the laborist of yesterday; or he may be both today. The laborist is often both capitalist and governmentist. The head of our government is a wealthy man whom there is every justification to call a capitalist. While we use these vicious words implying distinctions which do not exist, we

*The Step Ladder, Oct., 1937.

only do so because others do so. But we must point out their fundamental falsity. Ideas, said Goethe, would be easy enough to express were it not necessary to employ words to express them. Muddy thinkers get lost in a jungle of words which they themselves have created, and stand aghast at dilemmas which would be no dilemmas if only the right words had been used in defining them.

Whenever a difficulty arises with which our reason is not able to cope, said Thomas H. Huxley, we invent a new name for it and think we have solved it. That is the trouble with our social system today. We have been wallowing for so long in the quagmire of false class antagonisms and artificial social distinctions that we have lost sight of the one great truth, the *essential unity of man.* No man can walk alone. In every step, he leans on others for support. His fall involves the fall of others, some of whom may never have heard of him. There is no such thing as "We must unite to fight our class battles." We *are* united, indissolubly, inevitably, by a power far greater than our own, which compels us to consume the products of the soil in order to maintain our existence.

Let us cherish the amateur spirit, pledge it our allegiance, and foster it as a hope and a deliverance.

GEORGE STEELE SEYMOUR

Chicago, Ill.

The General Practitioner of Today*

By T. S. Proxmire, M.D., F.A.C.S., Lake Forest, Ill.

THE older ones of us, who are fortunate enough to have known personally and with some degree of intimacy a general practitioner of the horse and buggy age of our civilization, can appreciate more directly and more clearly the wide variety of changes which have affected the practice of medicine during the past forty or so years. Incomparable improvements in modes of communication and transportation have greatly lightened the physical effort required of the medical practitioner, although there are, even now, times when we feel justified in questioning this. Nevertheless, these modern agencies do make it possible for us to render medical assistance more promptly and to a greater number of patients in the same time. Conversely, the science of medicine has progressed more in the past fifty years than in the preceding ages since the coming of man. The net result of these changes would seem to be that, regardless of all comparisons, the practice of general medicine is still a man's-size job.

While this great progress was being made in the science of medicine, equally great progress was made in the other sciences, to the end that our civilization in general, particularly in this country, has been speeded up so that we all now live much faster lives. The American public is daily confronted, in industry, business, and home, with alterations designed to increase efficiency or comfort. Naturally, then, when it is economically possible, we Americans refuse to be satisfied with anything less than the modern, the latest, the up to date.

Living in such an atmosphere, we cannot blame the laity for applying the modern yardstick to the medical profession. More people are reading now, and it is possible for them to read more about medicine than heretofore. Syndicated columns, written by physicians; special dispatches; reports on papers read before medical societies; the progress of the very rare case; the new discoveries—all these are available through the daily newspapers. On this meager basis, rightly or wrongly, the family is wont to evaluate its medical practitioner. "Is he using that new treatment about which I have read so much? I have heard that Dr. Blank has cured several local people with it." Such reasoning frequently results in the loss of acquisition of a family. The outmoded general practitioner, like the old-model automobile, is still in use, but becomes less desirable the more he is out of date.

This attitude of the general public places upon the practitioner the responsibility of keeping abreast of the recent advances in medicine. The gravity of this burden is commensurate with the extent of the progress of medicine. By means of carefully selected reference books and medical journals, by attendance at conventions and postgraduate courses, it is possible to acquire a working knowledge of the advances in medicine and surgery; but without the use of one or more of these means, the physician, whether a graduate of 1900 or of the class of 1937, cannot long hope to remain truly qualified as a clinician. Any one who enters the practice of medicine bent solely on collecting a cash return from the time and money spent to acquire his training has a poor investment, unless he constantly spends more time and money to remodel his medical knowledge.

Because of the changing order of our civilization, the general practitioner will never again, to any great extent, enjoy the

*Presented before the Medical Round Table of Chicago, Oct. 12, 1937.

position of consultant and adviser in financial, moral, and other matters beyond the field of medicine. This may decrease slightly the desirable intimacy between patient and physician, and it also defines more clearly the object of the visit.

The Universal Specialist

Several years ago, during the great exodus from general practice to the specialties, many thought that the family doctor was a thing of the past. The past few years, however, have shown that he will always remain a part of the practice of medicine—an essential and highly desirable part. In spite of all the changes in modern times, at least eighty percent of all cases can still be adequately handled by the general clinician, without reference to a specialist. He is, thus, a specialist in all the specialties, yet conscious of his limitations and willing to refer indicated cases to a more limited specialist.

The general practitioner—the family doctor—is the first thought when a medical or surgical emergency arises in the home. It is his lot to recognize coronary occlusion, uremic convulsions, cerebral hemorrhage, diabetic coma, and the like. It is usually for him to decide if and when a surgeon shall be called to see the case of acute appendicitis, intestinal obstruction, strangulated hernia, or perforated peptic ulcer. Who else manages those inevitable cases of diabetes, arthritis, and neuritis? Is it not the general practitioner who usually treats the communicable diseases which are sure to be contracted at some time? Upon him rests the responsibility of making an early diagnosis if cancer and pulmonary tuberculosis patients are to be saved. Through the essential general practitioner the patient is, in the vast majority of instances, first brought into contact with the medical profession. Even if this great specialist, this *specialist in family practice*, decides that the skill of another specialist is required, he has at least served as a clearing house for the case.

Much of the criticism of the general practitioner is due to his failure to make adequate diagnoses before prescribing treatment. This applies particularly to the early diagnosis of cancer. Many advanced cases of cancer have consulted one or more physicians who have not made an adequate examination, but have been satisfied to prescribe a salve for what was later known to have been cancer of the breast, or suppositories for rectal symptoms subsequently found to have arisen from a malignant disease, or a douche powder for the vaginal discharge caused by uterine cancer.

In tuberculosis, too, the general practitioner plays an important rôle. It is he who is the first point of contact in practically all tuberculous cases. His ability and willingness to make an adequate examination will often determine the future of the patient and his contacts. Until this is done, and all contacts are followed routinely until the danger of the development of the disease is past, little additional progress will be made in the fight against this disease, which annually collects an enormous toll from the young adult population during its period of greatest usefulness.

Cancer and tuberculosis are mentioned because they stand high in the list of the causes of death and are splendid examples of the benefits that can accrue to both patient and practitioner if the practitioner applies modern knowledge in a careful and thorough examination.

Whether it be relief of pain or improvement in function, it is the search for treatment that brings most patients to the physician. But before appropriate treatment can be prescribed, an accurate diagnosis must be made. Thus, the general practitioner of today must possess keen diagnostic ability. By the use of adequate time, properly attuned senses, and logical thinking, the general clinician can make a proper working diagnosis in the vast majority of his cases. With the development of diagnostic laboratory methods and elaborate diagnostic equipment, there was a tendency to pass the burden of the diagnosis to the laboratory. The fallacy of this was promptly realized and laboratory results are now used largely to confirm physical diagnosis. In those cases in which elaborate tests are truly indicated, they can be made elsewhere by an expert, the family physician still remaining in charge of the case.

Selecting the Treatment

Having arrived at a proper diagnosis, treatment is in order. Whether the physician dispenses or prescribes medical treatment depends somewhat upon the section of the country in which he practices and whether it is a rural or an urban area. Without going into this question further, it suffices to say that there are obvious advantages and disadvantages to both practices.

But what shall we prescribe or dispense? Hundreds of the well-known prescriptions have been prepared by pharmaceutical manufacturers and are now available for dispensing or the immediate filling of prescriptions. Other prescriptions have been modified and are said to have been improved by the introduction of other drugs. Going still further, new drugs have been prepared, now usually in the form of highly complex organic chemicals with names so long and difficult of pronunciation that, even before they are introduced to the profession, simple trade-names must be attached to them in an effort to preserve their identities, which surely would be lost in the mazes of their chemical terminologies. Enthusiastic sales and detail men are

prone to stretch indications until they become as complex as the molecules of the preparations. Perchance the cure of a prominent person will be attributed to one of these preparations, whereafter it is promptly hailed as little short of a panacea. Reports will soon be found in the medical journals, some enthusiastic, others more conservative. Several months later other reports will point out unexpected secondary effects and therapeutic failures. Eventually the drug is either practically discarded or finds a well-defined field of indications. We have all seen the rise and fall of dozens of such preparations in the past few decades.

The decision to use or to avoid a new preparation, particularly when it is enjoying a wave of lay and even medical popularity, is a difficult one, and a problem which repeatedly confronts the general practitioner. If there is any short rule to cover this, I feel that it embodies care and caution in the adoption of any new drug.

On the other hand, perhaps the indicated treatment is surgical. Again the general practitioner must be qualified. It is always expected that he will be able to handle minor surgery, fractures, and the like; but he should likewise be capable of performing the general run of major surgical operations. On first thought this statement may seem to eliminate the necessity for the surgical specialist, but this is not my intended meaning. There still remains a large field for those whose practice is limited to surgery, and in addition, many general clinicians now exclude surgery from their practices. Nevertheless, they should possess good surgical judgment and be capable of following and assisting the surgeon when one is consulted in a case.

The extent of the surgical practice of the general practitioner varies in different parts of the country and according to his proximity to a medical center. In 1936 there were about 6,200 hospitals in this country, yet there are some areas in which hospital services are not readily available. A further factor is the definite tendency of the newer graduates to lean toward surgery or away from surgery from the outset of their medical careers. To me it is lamentable that a physician should, immediately upon embarking in the practice of medicine, abandon a large part of his qualifications.

Preventive Medicine

Preventive medicine is a relatively new phase of medical practice which, in the minds of too many physicians, is considered the field of activity of the local, state, and federal health services. Public health measures cannot hope to succeed without the cooperation and assistance of the medical profession, and who of the medical profession is better qualified to assist in a program of preventive medicine than the general practitioner who, by the very nature of his daily work, comes into contact with the entire family and has access to the children in the pre-school age—the age-group in which many preventive measures are most effective?

Diseases of the heart now outrank all others as a cause of death in this country. The general practitioner can carry into the homes of his families the fight against these by immunizations against infectious diseases during childhood and by urging that the well-accepted pediatric practices be followed. If a heart condition develops in the middle-aged patient, the general practitioner must be equipped to manage the case in such a way that the damage to the heart may be repaired or minimized and that the impaired heart is thereafter protected.

During the past year a nation-wide fight against syphilis has been launched. Health agencies are doing splendid work under various plans, but no great measure of success can be expected until the general practitioners of the country become syphilis-conscious. Blood for Wassermann tests is now routinely taken by many practitioners from all patients, except emergencies and those seeking only advice. Warner and Warner have adopted this plan and have reported that seven of the last 528 Wassermann tests taken by them were positive, in patients who had no knowledge of their syphilitic infection and little or no clinical evidence of it. This incidence of 1.32 percent of unsuspected syphilis is small, but very important if the fight against it is to be waged in such a way as to eliminate it. Just fifty percent of a group of physicians who submitted answers to a questionnaire prepared by the American Social Hygiene Association take blood for Wassermann tests from pregnant women. All of these physicians were members of some obstetrical association. Obviously, little success can attend the fight against syphilis while such conditions obtain. Real impetus will be given the movement only when the general practitioners cooperate more fully.

I realize that some of the statements I have made have not been complimentary to the general practitioner, but I feel that a periodic review of our faults may strengthen us in our determination to overcome them.

In closing, let me again pay tribute to the general practitioner—the family physician—by a quotation from Osler, the great clinician and modern philosopher:

"The family doctor is the man behind the gun, who does effective work. That his life is hard and exacting; that he is underpaid and overworked; that he has but little time for study and less for recreation—these are the blows that may give finer temper to his steel, and bring out the nobler elements in his character."

570 Deerpath Avenue.

THE SEMINAR

"A MONTHLY POSTGRADUATE COURSE"

(NOTE: Our readers are cordially invited to submit fully worked up problems to the Seminar and to take part in the discussion of any or all problems submitted.

Discussions should reach this office not later than the 5th of the month following the appearance of the problem.

Address all communications intended for this department to The Seminar, care CLINICAL MEDICINE AND SURGERY, Waukegan, Ill.)

Problem No. 11 (Diagnostic)

Presented by Drs. R. H. Jaffé and Victor Levine, Chicago, Ill.*

(See CLIN. MED. & SURG., Nov., 1932, p. 515)

RECAPITULATION: A colored woman of 22 years had not menstruated for six months and complained of marked distention of the abdomen, with belching and cramps; pain in the lumbar region; swelling of the legs; weakness; diarrhea of recent development; and the loss of 40 pounds in weight, in spite of a good appetite.

On examination she appeared emaciated and acutely ill. Her temperature was 97.6° F.; pulse, 120, weak and thready; respirations, 57, and very shallow. The infraclavicular spaces were retracted, with dullness and bronchovesicular breathing over both apices and the right base; no râles.

The uterus and adnexa could not be palpated, but there was an ulcer on the cervix and a purulent discharge from the urethra.

Her sputum and cervical smears were negative for tubercle bacilli. The urine showed many pus cells and bacteria.

Requirements: Suggest diagnosis, *giving reasons;* also suggest treatment, if indicated.

Discussion by N. Odeon Bourque, M.D. Chicago, Ill.

A lingering illness of six months' duration in a young person, accompanied by great loss of weight, amenorrhea, rapid pulse, gastric disturbance (persistent belching), loose stools, greatly distended and very tender abdomen with the presence of fluid (flatness in flanks) and colicky pains, with the chest findings as stated in the problem, certainly looks like *tuberculous peritonitis.*

Edema of the lower extremities is a fairly common complication of advanced tuberculosis. It is not unusual to find the sputum negative for tubercle bacilli.

Two things in the problem do not fit in with this diagnosis: continuous subnormal temperature, and a big appetite. Subnormal temperature *in the early morning* is almost as characteristic as is an evening rise of temperature in tuberculosis. In the discussion of this case we should have a temperature chart. A big appetite is, to say the least, unusual, if this means that she eats much. Often the patient will *complain of hunger* but can eat only a very small quantity. A single temperature reading, urinalysis, or slide is of very little value.

This symptom complex, without a blood picture, stool examination for blood and parasites, diazo and Wassermann reactions, x-ray studies, rectal finger palpation, place of residence (present and past) and occupation, with the exception of the chest findings, fits uncinaria, which is so prevalent in the colored race in the South.

The problem does not state whether the urine was or was not a catheterized specimen. It may be important to know if the pus comes from the kidney. The flatness in the right loin may be due to: (1) The omentum, colon, and intestine being rolled in a tuberculous mass; (2) fluid; (3) kidney dislocation, tumor, or a walled-off perinephritic abscess; (4) liver cyst or tumor.

The x-ray examination may be helpful. There is no statement as to the method of onset and as to the existence or absence of rigidity of the abdominal muscles, which could be valuable signs as to the possibility of an acute origin. Fainting is common in any debilitating disease.

Treatment: Blood transfusions, dextrose and saline infusions, and supportive treatment until a definite diagnosis is established. This problem does not present immediate surgical exploratory indications.

Discussion by J. A. Dungan, M.D. Greeley, Colo.

This problem is not sufficiently elaborated. Diagnosis would be easier if reports on the blood and more complete studies of the flora of the sputum and cervical discharge had been included. As it is, one thinks of malignant disease in the right abdomen, with

*Adapted from *Bul. Chicago M.S.*, Apr. 2, 1932

possible metastasis to the lungs, principally on account of the rapid wasting and rapid and thready pulse, and the evidences of lung involvement.

Such a neoplasm might have started in the right ovary, with the consequent tympanites accounting for the abdominal swelling. This would also account for the abdominal cramps, the pain in the back, the subnormal temperature, and the cervical discharge.

No report of a Wassermann test was included, and we are left to suppose that the right-sided ulceration of the cervix was not syphilitic.

However, I have seen a gonorrheal peritonitis—infection through the uterus and adnexa—excite just about all of the symptoms, those in the lungs alone excepted, noted in this case.

Discussion by W. E. McKinley, M.D.
Jewell, Kans.

The history of this case is too inadequate and too vague to assist very much in making an intelligent diagnosis, as no x-ray or chemical laboratory reports have been given.

With an absence of menstruation for several months, marked emaciation (loss of 40 pounds), cervical glands palpable, limited chest expansion, marked retraction of both supraclavicular spaces, bronchial breathing at the right base, impaired resonance over both apices, heart tones weak, pulse thready, the symptoms point, first, to a possible *chronic fibroid phthisis*, as there was a history of a subnormal temperature with rapid respiration and a rapid pulse rate.

The abdomen was tense and round, very tender, tympanitic, with flatness in the right flank, and the uterus and adnexa could not be palpated by vaginal examination (in other words, the uterus and adnexa were drawn high up in the pelvis). There was also belching, loose frequent stools, and absent menstruation for a period of nearly one year.

These symptoms would lead me to think, first, of a possible quiescent *tuberculous peritonitis* with ascites; second, of an ovarian cystic tumor with ascites (even if the patient is only 22 years of age, this would not exclude malignant disease). The edema of lower right limb was no doubt due to pressure on the vascular circulation of limb. The belching was probably due to pressure on the stomach, or to a degenerated heart muscle.

Exploratory laparotomy should be performed, after other methods of diagnosis fail.

Discussion by M. O. Robertson, M.D.
Medora, Ind.

This patient is, of course, very seriously ill. She has physical findings in her chest, her right flank, and her pelvis. She is of a race predisposed to tuberculosis, and the infraclavicular retraction is probably due to such a latent infection.

Of course, as there is no Wassermann test, x-ray, or cystoscopic report, only a tentative diagnosis can be made. As she is running a subnormal temperature, I am inclined to feel that this condition is more probably malignant than infective. A malignant neoplasm, with metastasis, engrafted on a latent tuberculosis, would explain her condition. One would inevitably be influenced considerably by the *appearance* of the patient, which it is impossible to describe fully.

I should want a Wassermann test, even if the patient was in the remotest district; and if possible, an x-ray study of the chest, abdomen, and pelvis; also a cystoscopic report, including ureteral catheterization. If these are obtained, our solution is frequently at hand.

There are, frankly, to me, some puzzling findings here. It seems that the first symptom noticed was the distention, which subsided after rest in the hospital. There apparently was no ulcer on the cervix uteri at this time. This would suggest that the beginning was in the right flank. If so, metastasis would not be in the cervix. Of course, ordinarily, malignant disease beginning in the cervix, would be followed by a very easily discovered, *fixed* uterus. A large ovarian tumor might overshadow the uterus and make it difficult to locate. There is also, evidently, considerable lung involvement, to so embarrass respiration.

While the case seems hopeless, I should open the abdomen to see if it is possible to give any relief. *Cancer* involving the right ovary, right lung, and probably the right kidney, would seem to me the most logical diagnosis.

Discussion by Ralph L. Gorrell, M.D.
Clarion, Ia.

A healthy woman who stops menstruating is presumably pregnant, unless proven otherwise. Other causes of secondary amenorrhea are: (1) endocrine—hypothyroidism, hypopituitarism, Simmonds' disease, pituitary tumors or inflammations, and occasionally in hyperthyroidism, diabetes, and obesity; (2) non-endocrine—pathologic lesions in the genital tract (ovarian tumors, follicle cysts, retention cysts, acute and chronic infections, and fibrosis of the ovaries, uterine tubes and uterus); psychic disturbances and emotional upsets; anemia, leukemia; starvation; tuberculosis; chronic infections; and other general health-depressing conditions.

Chorio-epithelioma might be considered, in view of the rapid loss of weight and increasing size of the abdomen, as it is well known that the uterus increases in size much more rapidly than during a normal pregnancy; but no vaginal bleeding occurred, and certainly a diagnosis would have been pos-

sible four months later, when she entered the hospital.

If the cervical ulcer had the characteristic bleeding on contact of carcinoma, the whole picture could be explained on a basis of abdominal carcinomatosis and metastasis to the lungs. The enlarged left cervical glands suggest abdominal malignant disease.

Was the dulness movable on change of position? Was an abdominal paracentesis performed (centrifugation of the fluid may reveal malignant cells)? No mention is made of red and white blood-cell counts, hemoglobin, and blood smears, to rule out leukemia, Hodgkin's disease, and other blood dyscrasias.

The history is very difficult to follow, as no pulmonary symptoms are listed nor the time that they appeared, though a patient who is breathing 57 times a minute and has areas of consolidation or tumor masses in the lung, must have had cough, dyspnea, cyanosis, or orthopnea at some time.

A detailed history would be of the greatest value in making a diagnosis. The new procedure of peritoneoscopy would here be of great value, if abdominal cancer cannot be ruled out.

No mention is made of casts in the urine or its specific gravity. Obviously no diagnosis, meaning a term arrived at as a result of a definite logical process of considering *all* data, can be given.

Discussion by Charles L. Coyle, M.D., Corvallis, Ore.

This case presents such varied symptoms that it would be wise to set down a list of diseases and rule them out one by one. Therefore, let us do so, as follows:

1.—Diseases causing abdominal enlargement
   A.—Normal pregnancy
   B.—Ectopic pregnancy
   C.—New growths
2.—Disease of the heart
3.—Disease of the lungs
   A.—Tuberculosis, with metastatic involvement of an abdominal organ or kidney.
   B.—Metastatic cancer of the lung, primary in an abdominal organ or kidney.
4.—Disease of the kidneys

The first two conditions that can be ruled out are normal pregnancy and any tumor involving the uterus, for that organ was not enlarged.

Ectopic pregnancy, with rupture into the abdomen and abdominal implantation, might cause amenorrhea, abdominal swelling, lumbar pain, swelling of the legs, eructations, abdominal pain, fainting, diarrhea, rapid pulse, rapid respiration, abdominal tenseness and tympanites, and flatness in the right flank. It would not account for the other symptoms and signs. A Friedmann test of the urine would decide this possibility with reasonable certainty. One would have to diagnose some pathosis of the urinary tract as well, for an ectopic abdominal pregnancy, in itself, could not account for the urinary symptoms.

The next consideration is kidney disease. This might account for the amenorrhea, loss of weight, abdominal swelling, lumbar. pain, swelling of the legs, flatness in the right flank, discharge from the urethra, and pus and bacteria in the urine. There is certainly some kidney involvement, which may be pyonephrosis or perinephritic abscess. It may be secondary to a stone, or metastatic tuberculosis or cancer. Catheterization of the ureters and pyelography are certainly indicated, as well as a phenolsulphonephthalein test on each kidney separately. However, I doubt if the kidney disease is the whole story.

The next consideration is heart disease. This might account for amenorrhea, abdominal swelling, swelling of legs, eructations, fainting, rapid pulse, rapid respiration, and a tense, tympanitic abdomen. However, one would expect an enlarged heart, murmurs, cyanosis, and other signs and symptoms of heart disease, which were not mentioned in the case report, so I think heart disease can be safely ruled out.

The next consideration is disease of the lungs. This may be tuberculosis or a tumor starting in the abdomen and metastasizing to the lung. These conditions may account for amenorrhea, loss of weight, emaciation, rapid pulse, rapid respiration, retraction of the infraclavicular spaces, and dullness over the apices. The negative sputum for tubercle bacilli certainly does not rule out that disease. Pulmonary tuberculosis with involvement of the peritoneum and one or both kidneys might explain all the symptoms and findings. I should continue to examine the sputum and urine obtained by ureteral catheterization for tubercle bacilli and take a roentgenogram of the chest, a sedimentation test in case calcified tubercles were found, and a Mantoux test. This latter test is of value only if it is negative. On the other hand, absence of lung findings other than dullness over the apices makes one less enthusiastic over the tuberculosis idea. Cough, expectoration, night sweats, and afternoon fever are not mentioned, as would be expected in active pulmonary tuberculosis. The metastatic lung tumor idea may be more probable.

This leaves new growths in the abdomen with metastasis to the lung as probably the most likely possibility. It might cause amenorrhea, abdominal swelling, lumbar pain, swelling of the legs, eructations, abdominal pain, fainting, diarrhea, emaciation, rapid pulse, rapid respiration, and a tense and tympanitic abdomen. In other words, it could account for all but the urinary system symptoms. No mention was made of a palpable

tumor mass. If the cancer involved the intestine, an x-ray study, after a barium meal, might be of value. If it involved the biliary system, a gallbladder visualization might be attempted. Pancreatic tumors are especialiy hard to diagnose.

I have discussed the problem in a general way, hoping to discover a lead that will give more of a general idea of what organs are involved. There is still much work to be done from where I left off before one can arrive at an exact diagnosis. No treatment is indicated, of course, until a diagnosis can be made.

Discussion by E. C. Junger, M.D., Soldier, Ia.

The abdominal symptoms of this colored girl point to mesenteric involvement of lymph nodes which is probably tuberculous, fibrous, or carcinomatous. Metastasis in either malady can give the chest and general symptoms. No treatment promises anything beyond temporary relief.

Discussion by Edmund Lissack, M.D. Concordia, Mo.

In this case, tuberculosis is to be considered. I should say tuberculosis of the fallopian tubes, with possible abscess formation and adhesions. The diarrhea might lead one to believe that a perforation into the bowels was possible.

My reasons for this suggestion are: race, age, sudden onset, abdominal distention, loss of weight, recurrence in a few weeks, cramps over the entire abdomen, emaciation, low temperature, cervical gland involvement, chest involvement, purulent discharge, cervical ulcer, and diarrhea, all of which point to *pelvic tuberculosis*. The fact that no tubercle bacilli were found in the discharge must not lead us astray.

Treatment is difficult to suggest. If the patient's condition permitted, an abdominal exploration might be considered, paying close attention to the pelvic contents. The incision must be made low to permit this.

If the patient's condition did not permit operative interference (and I am inclined to believe this was the case here, because an unsatisfactory examination is reported), I would suggest an opiate and rest. The condition may be beyond help already.

Solution by Dr. Jaffé

The patient was too ill to bear an adequate clinical study, and died the day after her admission to the hospital.

When the abdominal cavity was opened, at autopsy, about 300 cc. of a greenish, purulent fluid was exposed. The greater omentum was firmly adherent to the intestine and the pelvic organs. Scattered over the serosa were a few up to 2 mm., purple-gray nodules. The uterus was bound down and covered by firm, fibrous adhesions. On the right lateral circumference of the vaginal portion of the cervix an irregular ulcer was found, which measured 2x0.5 cm. in diameter and was 3 mm. deep. In the base of the ulcer there was a single, 3-mm., yellow-gray nodule. Similar nodules were found on the inside of the cervical os, the cervical canal, and the uterine cavum. Both fallopian tubes were much dilated, and on cutting numerous yellow-gray nodules were found in the wall and in the lumen. Both broad ligaments contained large cavities, 6 cm. in greatest diameter, which were lined by a shaggy, yellowish-gray membrane containing numerous yellow-gray nodules. The content of the cavities consisted of a dirty grayish-brown fluid. The right cavity had broken into the rectum, communicating with its lumen by an 8-mm., irregular opening. The ovaries were completely obscured by the adhesions and cavities.

The heart was small and atrophic. Both lungs contained yellowish-gray nodules, which were arranged about the bronchi in the form of distinct rosettes. In the subapical region there were single larger, caseous nodes. The spleen was swollen and softened. In the capsule of the liver several yellowish-gray, up to 3.5 cm. plaques were found. There were a few yellowish-gray nodules in both kidneys. The lower ileum showed several irregular, transverse ulcers, with yellowish-gray nodules at the edges and in the floor. The mesenteric and peri-aortic lymph nodes contained confluent, caseating, yellowish-gray nodes.

The tuberculous changes of the peritoneum were too slight to account for the free exudate, which was suppurative in character and had the odor of a *B. coli* infection. Thus, one has to assume that an acute, suppurative inflammation was superimposed upon the tuberculosis. The focus of this infection was found in a large cavity in the right broad ligament which, tuberculous in nature, had broken into the rectum and had become infected secondarily from the rectum. The tuberculous pelvic abscess was associated with a bilateral tuberculous salpingitis, endometritis, and endocervicitis. There was an acinose, nodose, pulmonary tuberculosis, tuberculous ulcers in the ileum and colon, and scattered tubercles in the liver and kidneys.

Problem No. 1—1938—(Neurologic)

Presented by M. O. Robertson, M.D. Medora, Ind.

MRS. S., age 27 years, married at the age of 17 and has four living, healthy children. Her mother is living and well; father died at 53, of some form of "dropsy." At age of six she was pushed from a porch and fell

some 3 or 4 feet, cutting a slight gash in the forehead, a small scar of which remains. She had an abscess in the right temple region in childhood. Just before marriage she had arthritis and went on crutches. Recovery was complete. No other illness is remembered by the family or patient. Two brothers and three sisters are living and well. One brother died in infancy. The present illness began on October 11, after ten years of seeming vigorous health.

Mr. S. consulted me October 12, stating that his wife had fallen on the floor the day before, the fall being preceded by vertigo and an indescribable sensation; the left foot was everted. On the 12th or when I was consulted, Mr. S. came with a home-made diagnosis of some menstrual disorder, as the patient's clothing was blood stained. I prescribed and informed Mr. S. that medical aid should be summoned if there were other symptoms.

I was called on October 15, to find labor pains present, and prescribed for the patient without any manipulation, as her temperature was 103° F., and pulse 120. Abortion of a 2-month fetus occurred October 16, and her temperature was normal at that time, and so far as I could ascertain remained so.

There were no other symptoms until October 24—13 days after the onset of the first symptoms and 8 days after the abortion. On that date a Jacksonian type of convulsions began. The eyes rotated to the right, returning to the left with a jerk (nystagmus); the head turned to the left; and a convulsion of the neck muscles occurred. After a few attacks, which lasted from 5 to 15 minutes and occurred at intervals of 15 minutes to three hours, the left arm became involved. These convulsions continued, and gradually became general, until November 2.

On October 25—the day following the beginning of convulsions—she complained of localized headache, in the right temporal region, which gradually became general, or diffuse, and finally so severe that she cried with pain, and had members of her family make external pressure on her head, claiming partial relief therefrom. The pain was continuous, with frequent paroxysms, accompanied by decided nausea during the paroxysm.

Urinalysis was negative except for decided phosphaturia. She began menstruating on November 19; the flow lasted 6 days and seemed perfectly normal. On November 22 there was beginning spastic paralysis of the left arm, and also the patient thought she was at a neighbor's house and begged to be taken home. The paralysis soon involved the left leg, and was spastic in character in that location.

Requirements: Suggest a tentative diagnosis, giving reasons. What further examination would you have made?

INTELLECTUAL AUTHORITY

Right intellectual authority, of any kind or degree, is not a limitation, but an enlargement of the intellectual life of those who accept it. It gives to the individual mind the benefit of the attainments of other minds, furnishes it prompt, practical guidance, and aids it (but only in the measure of its own independent efforts) to attain to an activity of wider range, loftier reach, profounder penetration, and greater intensity. The intellectual authority deferred to, in any particular respect, must be demonstrated to be more trustworthy, in that respect, than any rival authority before its teaching can be definitely and finally accepted.—TEACHINGS OF A MASTER.

INVESTIGATION AS A HOBBY

One of the values of a hobby is that it does not have to be important. It just needs to be of interest to one fellow. Most of our assets in the past have been discovered through the natural inquisitiveness of some one individual.

Have you ever investigated anything just for the pleasure of it? If your inquiries have been merely a part of your job, you have missed most of the kick of life. There is no method that you need here observe; no laws. You simply let your mind travel inquisitively, as it will. You need only to be yourself—the child that is within you. If nothing of tangible value comes of it, what does it matter?—WILLIS R. WHITNEY, in American Magazine, *July*, 1937.

MAN'S NEED

What humanity desperately needs—more than new sources of power, more than leisure or prosperity—is a new conscience.—STANWOOD COBB, in *"Security for a Failing World."*

CLINICAL NOTES and ABSTRACTS

Crystallography an Aid in Medical Diagnosis

THE overlapping and interrelationship of the sciences is one of the interesting and suggestive developments of the recent growth in knowledge. The possibility of the interrelationship may at first sight seem remote. This is especially true when we consider the application of the formation of crystals to the study of disease. To the superficial observer there would seem to be no relationship whatever between the two, but a review of the facts reveals an interesting connection of great potentiality. It all originated in an accidental discovery made by the Dutch biologist, Ehrenfried Pfeiffer, and it affords an illuminating picture of modern scientific progress.

Pfeiffer, one winter day, noticed that the frost crystals formed on the windows of a butcher's shop were different in form from the crystals that formed on the windows of a florist's shop, and furthermore that these differences were both consistent and persistent. And right here comes a beautiful instance of the inquiring attitude of the true scientific mind. Undoubtedly there was a cause for the difference in the crystals, and Pfeiffer suspected that it was due to the presence in the water vapor of the air of a different substance in the various shops. Naturally, in the butcher's shop this must be an animal extract in minute quantities, and in the florist's shop a vegetable extract, also in small quantities.

The laboratory was the next step in this very interesting study, and Pfeiffer's investigations yielded most remarkable results. A copper chloride solution to which an animal extract was added yielded one form of crystal, while if a vegetable substance was added, quite another form of crystal was obtained. Repeated tests confirmed these findings. Then came the next development in the experiment.

The problem now was this: Would diseased plants produce the same crystals as those that were in a healthy condition? To his delight, Pfeiffer found that the crystallization resulting from the vapor arising from unhealthy plants varied materially from that produced by healthy plants of the same species. Here was a most intensely interesting fact. With this beginning, the scientist gradually improved and perfected his technic until he was able to distinguish invariably the distinctive crystallizations of the various forms of plant pathology.

Now what has all this to do with medical diagnosis? Naturally, Pfeiffer reasoned, if herbal pathosis has its own peculiar and characteristic crystallization, animal and human pathoses should likewise have their distinctive crystal formations. He at once directed his investigation to human disease. He added minute quantities of normal human blood to his salt solutions and obtained a distinct form of crystallization, which remained invariable for healthy individuals. He then took blood from persons afflicted with various diseases and found that each disease yielded its own characteristic crystals.

Basing their experimentations upon these findings of the Dutch scientist, it remained for certain members of the neurological staff of the Northwestern University Medical School to apply the principles thus evolved to a study of the pathology of the brain and nervous system of man. These investigators employed spinal fluid and physiologic salt solution in their research work, and their findings are astonishing, at least, and may even be the first step in a system of medical diagnosis that may be regarded as revolutionary. Thus far they have been able to affirm that a distinct and characteristic crystallization forms in a number of the diseases of the brain and nervous system of man.

The possibilities of this exceedingly interesting discovery are numerous, as may be readily seen. It may even be revolutionary in its ultimate outcome, resulting in an entirely new classification of diseases, as well as in the accepted methods of treatment. It certainly opens up a fascinating new avenue in medical diagnosis. The crystallography of disease may become a very valuable aid in the recognition of obscure conditions. At any rate, the medical profession is indebted to Professor Pfeiffer for his unique contribution to medical science.

W. A. NEWMAN DORLAND, M.D., F.A.C.S.
Chicago, Ill.

Recent Advances in Therapy: Whole Suprarenal Gland*

IN a series of 2,000 cases, covering a period of seven years, I have found that whole suprarenal gland is of value in these conditions:

1.—*Cough:* With the exception of codeine, I have found no drug which is as dependable for controlling distressing coughs as is the adrenal gland material. At times, codeine will relieve coughs that the other will not, but the reverse is often true. The coughs associated with acute nasopharyngitis, acute bronchitis, chronic nasopharyngitis, chronic bronchitis, measles, and whooping cough were relatively afebrile (measles excepted) and were so frequently checked by adrenal medication that one could not but be impressed by its efficacy.

2.—*Rhinitis* (vasomotor): Adrenal gland, with iodine or thyroid, appeared to relieve the afebrile "colds" of infancy, and the acute or recurrent rhinitis of children and adults.

3.—*Laryngeal stridor:* I believe that adrenal gland may prove to be as effective in such conditions as is any other therapeutic agent of today.

4.—*Asthma:* Whole suprarenal is as effective as any other remedy which may be administered by mouth. By continuing daily administration of adrenal, thyroid, or iodides, for as long as may seem indicated, with appropriate corrective and dietary measures, one may apparently expect a cure of many of one's children patients.

5.—*Vomiting, spastic:* In those cases of pylorospasm of infants which do not promptly respond to atropine or phenobarbital, one may anticipate relief from properly administered adrenal gland in practically all cases. In the past eight years, none of my cases of congenital pyloric obstruction has required surgical intervention. If, providing the feedings are reasonably correct, a satisfactory improvement has not occurred in 24 hours, one should increase the dose or add iodine or thyroid.

6.—*Diarrhea:* The adrenal gland has been a satisfactory agent in checking frequent loose stools in 200 cases of diarrhea.

7.—*Eczema:* Suprarenal gland, with or without iodides or thyroid, has been much more successful in relieving eczemas than has any other therapeutic measure. A definite improvement usually follows within one or two days. Within a short time, the patients are able to tolerate foods to which they are very susceptible. Eggs and butterfats may give trouble.

8.—*Hypothyroidism:* In treating hypothyroid patients who are intolerant to thyroid gland in minute doses, or those who later develop toxic reactions, the adrenal substance is simply invaluable as an adjunct. Sufficient amounts of thyroid may be given to intolerant individuals, larger doses may be given without toxic reactions developing, and desirable results may be obtained, especially in the treatment of cretins and hypothyroid children, with a minimum of untoward effects.

Thyroid and adrenal substance may be substituted for each other, when one loses effect, or combined, when adrenal substance has lost its effects. One firm from whom I obtain adrenal gland tablets assays the epinephrin content as 4.3 percent. In asthmatic dyspnea, the same action is obtained as by the hypodermic administration of epinephrin, which is rarely necessary. Suprarenal concentrate has been disappointing to me. Untoward reactions are vomiting, abdominal pain, and constipation, which may be avoided by using smaller doses or combining with iodine or thyroid extract.

Dosage: In acute conditions, administer, 2 or 3 hours apart, doses of ¼ to ½ grain (for infants), or 1 to 2 grains for children; in chronic conditions, give with meals, in the same doses. Thyroid should be given in one-half these doses. Preparations of Parke Davis and Co., and Eli Lilly and Co., have seemed to give better results than those of other firms.

ORVILLE BARBOUR, M.D.

Peoria, Illinois.

*Ill. M.J., Oct., 1937.

Progress in Pediatrics*

THE normal condition of an infant or child is *growth*. We must never be satisfied with a stationary weight. In young infants, disregard of this maxim leads rapidly to serious results. When the normal rate of growth is not maintained, something is seriously wrong. In infants the trouble may be improper feeding, but with older children failure to grow usually means illness of some sort.

Indigestion in infants is often due to a sore throat, otitis media, or bronchitis, which may be missed if we pay too much attention to the secondary digestive symptoms.

In pylorospasm the judicious use of phenobarbital, in doses sufficient to control the spasm, will permit the baby to retain food and make normal growth. The treatment must be continued until about four months of age, when the sympathetic nervous system is mature enough to prevent the spasm.

We give but one dose of 1.5 cc. of precipitated diphtheria toxoid to prevent diphtheria.

Menigococcic meningitis is now treated by the intravenous, rather than intraspinal, administration of antitoxin.

*Northw. Med., Oct., 1937.

The use of a basal anesthetic prevents much of the mental trauma sustained by the child when surgery is needed.

D. M. DAYTON, M.D.

Tacoma, Washington.

Advances in the Treatment of Hypertension*

IN most cases of hypertension, the pressure is not fixed but labile and can be brought down by any type of medication. In most instances, when treatment was withdrawn, the blood pressure rose again, but in a few cases it remained lower for months without any treatment. *The treatment must be modified to suit the patient,* and attention is to be given to the nutrition and wellbeing of the patient.

1.—*Potassium thiocyanate* is a very reliable drug for reducing pressure and relieving symptoms, but is occasionally quite toxic. A fall in pressure of 70 mm. was not uncommon after administering this drug.

2.—*Calcium* is a valuable adjuvant, and a marked drop in blood pressure was occasionally witnessed. It may be combined with digitalis or belladonna, according to the indications.

3.—*Phenobarbital* produced a drop in pressure in a high percentage of cases, but the fall was only moderate, usually 10 to 40 mm. It is particularly valuable for the nervousness in the thyroid hypertension group.

4.—*Veratrum viride* produced a drop (slight) in blood pressure when given orally. On the tinnitus and vertigo it had a favorable effect.

5.—*Digitalis* was reliable in those cases in which it was indicated; i.e., where myocardial weakness was indicated by dyspnea, nocturnal dyspnea (cardiac asthma), et cetera.

6.—*Nitrites* were abandoned, as it was felt that the patients were not being benefited by their use and that better methods were available.

7.—*Potassium iodide* was used in 12 cases, and a marked drop in blood pressure was observed in one-half of this number; in two of these, the drop exceeded 60 mm.

8.—The *low-salt diet* (1.2 Gm. daily) will reduce the circulating blood by 19 percent—a point to keep in mind in cases of pulmonary edema and congestive heart failure. This cannot be continued, without interruptions, over a long period, because of the possibility of uremia. *Decided relief of symptoms* and a drop in pressure frequently follow this simple measure. Salt substitutes may be advised. Calcium gluconate may also be given in edema of the brain, if stupor, drowsiness, or sluggish mental activity is noted.

The dose of thiocyanates is 0.3 Gm. daily of the potassium salt, which is usually followed by a decrease in the nervousness and headache in from three to seven days; and a fall in pressure of 30 to 50 mm. is observed in from 10 to 15 days. The dose is then decreased to 0.3 Gm. 3 or 4 times a week, then discontinued, when the blood cyanate level reaches 10 mg. Vascular collapse, weakness and cerebral thrombosis were observed in two of Barker's cases, with recovery. This effective drug is toxic and dangerous.

S. KENNETH ROBINSON, M.D.

Chicago, Illinois.

*Ill. M.J., Oct., 1937.

Recent Advances in Treatment of Angina Pectoris*

THE sodium acetate derivatives of theophylline and theobromine were the most effective preparations in angina pectoris. Patients who did not respond to these drugs showed a good response to theophylline with calcium salicylate, which was the next best preparation. Theobromine and theobromine with sodium salicylate were distinctly of much less effectiveness, and caffeine citrate was of little or no use.

Sedatives are of value in the treatment of patients with angina pectoris, but their combination with the purine drugs does not result in an increased exercise tolerance. Theobromine with sodium acetate is by far the least expensive of the effective purine preparations.

M. G. BROWN, M.D., and
J. E. F. RISEMAN, M.D.

Chicago, Ill.

*J.A.M.A., July 24, 1937.

Forget the Stomach

IT is a remarkable fact, and a sad one, that the physician who struggles every day with the problems of indigestion knows practically nothing about the digestive and absorptive functions of *the main organ of digestion, the small intestine.* All his training in college was given him with the thought that it is the stomach that he has to worry about and treat. Actually every bit of physiologic evidence we have indicates that the stomach is far more resistant to irritants than the small bowel, and nausea and vomiting can be induced more easily by irritation of the duodenum and upper jejunum than by irritation of the stomach. Thus, the use of a keratin coating on irritating medicine is based on the naive assumption that the stomach is the only digestive organ to be considered.—WALTER C. ALVAREZ, M.D., in *Am. J. Dig. Dis. & Nutr.,* July, 1937.

Chronicity of Rheumatic Fever*

IF one is called to see a patient suffering from pulmonary hemorrhage and makes a diagnosis of pulmonary tuberculosis, one informs the patient that the control of hemorrhage is a matter of a few hours or a few days, but that he was suffering with a disease which would take months or years to cure. I believe that a similar viewpoint, emphasizing the chronicity of rheumatic fever, would be a valuable therapeutic adjunct.

Swift classifies the changes into three stages: (1) Structural injury and tissue swelling; (2) proliferation; and (3) replacement with fibrous tissue. This places the disease among the granulomas, with syphilis and tuberculosis. Active heart lesions are found in individuals who have had no joint symptoms for a year (Von Glahn). Statistics and clinical observations force the conclusion that rheumatic fever should be recognized as a contagious disease.

DIAGNOSIS

	Rheumatic Fever	*Focal Arthritis*	*Atrophic Arthritis*
Age	under 15	15 to 40	15 to 40
Previous attacks	frequent	frequent	progressive
Nutrition	usually poor	usually good	progressively worse
Joint involvement	successive middlesized joints	few joints	smallest joints first
Character of attack	acute	acute	subacute
Upper respiratory infection	usual	frequent	occasional
Cardiac signs	in 80 percent	none	none
Electrocardiogram changes	frequent	absent	absent
Leukocytosis	positive	positive	absent
Salicylate response	usual	rare	absent

There are no characteristic symptoms in many cases. Joint pain, chorea, and cardiac symptoms were so minimal in from 25 to 50 percent of the cases of mitral heart disease, that no history of rheumatic fever was obtained. Prodromal symptoms are: Undue pallor, undue flushing, easy fatigue, loss of or failure to gain weight, pain in joints (localized; brought on by exertion).

Activity: The sedimentation rate is the most accurate guide we have to the activity. *The existence of a rapid pulse is almost positive proof of continued activity of rheumatic fever.* Anemia and failure to gain weight are additional evidence.

Treatment: There is no specific. Residence in a tropical climate will render the disease quiescent. Upon return to a temperate climate the disease frequently recurs. *Rest* is advocated until activity is stopped. Salicylates or neocinchophen will control the acute symptoms in the joints, but are not curative. Fowler's solution or cacodylates may be of value. Tonsillectomy may prevent severe recurrences. Vitamins have been stated to have reduced the number of recurrences, when given over a period of months.

The patient must be made to realize that he is suffering from a *chronic disease*, so that *he will not blame the physician* when quick recovery does not ensue. He should be led to expect a prolonged and uneven convalescence. This very fact permits him to be kept under observation and treatment for a prolonged period of time, and automatically places the blame upon himself or the disease for any recurrence.

K. K. SHERWOOD, M.D.

Kirkland, Wash.

*Northw. Med., Aug., 1937.

Look for FACTS AND COMMENTS among the advertising pages at the back.

Allergic Problems Puzzling to the General Practitioner*

PUZZLING allergic disorders may be grouped as respiratory, gastro-intestinal, and cutaneous.

Respiratory: Under the designation "acute colds" are hidden mild allergic reactions, many of which are atypical cases of hay fever. Conjunctivitis, nasal obstruction, sneezing, and lacrimation may be present, or only one symptom may appear. "Winter colds" may be due to environmental excitants. These appear in the fall, soon after the individual, usually a child, with added hours inside after a summer in the open, is subjected to the heated and often dry air of the home, with its accumulation of dusts, feathers, toilet powders, animal epidermals, etc. Such at-

*Jour.-Lan., Oct., 1937.

tacks should be easily identified as allergic, due to the suddenness of their appearance and disappearance; lack of fever, malaise, and contagiousness; the absence of any mucopurulent nasal discharge; and the immediate improvement upon correction or change of environment. These paroxysmal allergic responses readily develop into a persistent form, frequently diagnosed chronic sinusitis.

In children, especially, foods are frequently responsible for nasal and bronchial symptoms. Egg, chocolate, fish, or nuts may be responsible for non-seasonal colds or a mild persistent cough. Along with the nasal symptoms, may be pallor, listlessness, fatigue, malnutrition, abdominal discomfort, and diarrhea.

Gastrointestinal: The immediate type of reaction, with nausea, vomiting, and diarrhea, which develops within three hours after eating the exciting food, is usually easily recognized, and the skin tests are usually positive. The delayed type, characterized by anorexia, coated tongue, bad taste in the mouth or bad breath, abdominal distress, feeling of fullness or pain soon after eating, nausea, belching, vomiting, and frequently diagnosed as cholecystitis, appendicitis, or peptic ulcer, is frequently functional, due to eggs, milk, etc.

Cutaneous group: Less well known is the fact that, in many instances, a food causes skin symptoms by *contact*, as in the cook who develops a rash soon after *handling* white potato. Other foods especially common are egg, beef, fish, berries, pineapple, apple, carrots, celery, string beans, and asparagus. The *symptoms:* in a few minutes itching and redness of the face, neck and hands appear, with congestion of the eyes and sometimes sneezing and coryza. Occasionally air-borne dyes, drugs, or chemicals produce a dermatitis (inks, stains, dyes, lacquers, dry-cleaning fluids, petroleum products). Drugs by ingestion may result in acute and chronic cases of dermatitis.

J. A. RUDOLPH, M.D.

Cleveland, Ohio.

When Not to Use Alkalies in the Treatment of Peptic Ulcer

IF an ulcer patient complains of pain, only partially relieved by treatment, especially of pain at night, the gastric acidity is probably decidedly high. Gastric acidity determinations will show that the stomach produces a greater quantity of acid in response to increasing amount of alkalies.

Such patients are best treated by rest in bed (preferably hospitalization) for several weeks and given frequent feedings of a very bland diet, and milk-cream mixture every hour. Bromides (gr. xv—1.0 Gm.—four times a day) are usually necessary to control nervousness and secure restful sleep. After the symptoms are fully allayed, the diet is gradually increased until the schedule is that of the uncomplicated case. Since jejunal ulcers are prone to develop in this type of patient, surgical procedures should be avoided in the absence of perforation, obstruction, or hemorrhagic tendency.—E. S. EMERY, M.D., and R. T. MONROE, M.D., in *Archiv. of Int. Med.*, Feb., 1935.

Treatment of Gastric Hemorrhage

INSTEAD of withholding all food during gastric bleeding from a peptic ulcer, I place the patient on a full soft diet and alkalies, as follows: 1 teaspoonful of a mixture of sodium bicarbonate and magnesium subcarbonate 15 Gm. each, three times daily; also, ferrous lactate 0.5 Gm. three times daily; every three hours, white bread and butter, or oatmeal, or cocoa, and one full meal at noon (pureed vegetables, well-cooked meat, mashed potatoes, soups, rice, or tapioca puddings). The patients are allowed to eat as much as they wish. Blood transfusions are given, if the bleeding is persistent. Under this regime, of 251 patients treated for bleeding, *only one died*, as contrasted to the usual mortality rate of 4 to 8 percent.—E. MEULENGRACHT, in *Lancet*, Nov. 30, 1935.

[W. C. Alvarez, of the Mayo Clinic, and G. B. Eusterman, of the same institution, think that this is an important contribution to treatment.—ED.]

Look for THE LEISURE HOUR among the advertising pages at the back.

Treatment of Delirium Tremens

IF a case of delirium tremens is at all severe, lumbar puncture is lifesaving and should be done as soon as the patient begins to have hallucinations; 30 to 60 cc. of spinal fluid are withdrawn. Then give:

℞

Potass. bromidi ------dr. vi	24.0
Chloralis hydratis ----dr. iij	12.0
Syrupi aurantii --------f℥ i	32.0
Ad. dest. q.s. ----------f℥ iij	90.0

M. et Sig.: A tablespoonful as required, every two or three hours until sleep is secured.

Fluids (water, saline solution) should be given freely, by mouth, rectally, or subcutaneously. Prolonged hot baths and hot packs are given twice a day.—E. A. MULLEN, M.D., in "Handbook of Treatment" (F. A. Davis Co.).

THUMBNAIL THERAPEUTICS

Cautions in Use of Local Anesthetics

1.—In giving local anesthetics, never enter healthy tissues after infiltrating infected areas. Do not use epinephrin with the procaine in the neighborhood of necrotic tissues.—L. ADAM, M.D., Prof. of Surg. at Univ. of Budapest.

2.—Do not use epinephrin with procaine for anesthesia of the fingers. The arteries of the fingers are practically end-arteries, and gangrene may follow the ischemia.—GEZA DE TAKATS, M.D., in *J.A.M.A.*, May, 1935.

Peptic Ulcer

SURGERY has little or no place in the treatment of peptic ulcer per se. Surgery is indicated only when there are complications (obstruction, perforation, repeated hemorrhage, possible malignant change). It is doubtful whether the surgeon can relieve a patient who is not benefited by conservative measures.—A. OCHSNER, M.D. (Surgeon), in *Texas S. J. M.*, Feb., 1937.

Care of Healing Wounds

A GRANULATING surface presents an efficient barrier against bacterial invasion. It is however, *easily damaged, therefore use no swabbing, no overfrequent change of dressings, and no strong antiseptics.*—WILLIAM BOYD, M.D., in "Surgical Pathology" (Saunders).

The Stiff Hand

THE stiff, ankylosed fingers of the chronic arthritic can be made useful by manipulation, casts, heat, and traction. Freeing of the joints can be carried out by arthroplasty, so that a useful hand will result.—JOHN KUHNS, M.D., in *J. Bone & Joint Surg.*, Oct., 1935.

Medical Treatment of Goiter

PURE, crystalline vitamin B_1, plus brewers yeast, prevents the loss in weight due to large amounts of thyroxine. Give 200 International units of vitamin B_1 (2 tablets), and 6 brewers-yeast tablets daily.—BARNETT SURE, M.D., in *J. Nutrition*, May 10, 1937.

Treatment of Fatigue and "Exhaustion"

FATIGUE and exhaustion, occurring in normal individuals, can be relieved by Benzedrine Sulfate tablets (10 mg. each), giving one before breakfast and one before lunch.—HYMAN MILLER, M.D., in *Calif. & West. Med.*, May, 1937.

Antiseptic Treatment of Burns

A ONE-PERCENT watery solution of brilliant green needs to be painted on burns only once or twice a day to form a soft, flexible crust. Unlike tannic acid, it resists infection and stimulates, not delays, healthy tissue growth.—JOSEPH K. NARAT, M.D., in *Am. J. Surg.*, April, 1937.

Treatment of Worms

HEXYLRESORCINOL is an effective anthelmintic, as it removes 90 percent of ascaris, 80 percent of hookworm, 40 percent of trichuris, and 87 percent of flukes *(Fasciolopsis buskii)*.—O. R. McCOY, M.D., in *Chinese M.J.*, June, 1937.

Treatment of Polycythemia

IN polycythemia, the removal of 500 cc. of blood is performed at intervals of from one to three days, until the desired hemoglobin and red-blood-cell level is reached. Venesection is relatively safe and efficient.—D. J. STEPHENS, M.D., and N. L. KALTREIDER, M.D., in *Ann. Int. M.*, April, 1937.

Diuretic by Rectum

TEN cases of organic heart failure with edema have been treated with an organic mercurial diuretic (Mercurin), given in suppository form, and the urine excretion resulting was found nearly as great as that following the intravenous administration of Salyrgan and about 75 percent of that from the intravenous use of Mercupurin. These suppositories are considered a safe and effective diuretic.—DRS. JOHN PARKINSON and W. A. R. THOMSON, in *Lancet* (Lond.), Jan. 4, 1936.

THE DOCTOR'S STUDY

NEW BOOKS

Any book reviewed in these columns will be procured for our readers if the order, addressed to CLINICAL MEDICINE AND SURGERY, Waukegan, Ill., is accompanied by a check for the published price of the book.

Books are windows in the world of thought, and by opening them we are enabled to gaze into that universe of the unknown which lies beyond the boundary of the commonplace.—MANLY P. HALL.

Fishberg: Heart Failure

HEART FAILURE. *By Arthur M. Fishberg, M.D., Associate in Medicine, Mount Sinai Hospital, New York City. Illustrated with 25 Engravings. Philadelphia: Lea and Febiger, 1937. Price $8.50.*

This work records the advances in our knowledge of the nature and treatment of circulatory failure that have resulted from the introduction of quantitative methods for the measurement of some of the circulatory variables in health and disease. Appreciating the limited facilities with which the average practitioner must usually carry on, the author has attempted to supply him with a foundation of facts and principles, based largely on investigations in the laboratory and clinic, which will enable him to give the best modern therapy to his patients with cardiac or circulatory failure.

In the introductory statement the types of circulatory failure are briefly outlined. This is followed by chapters on the dynamics of the circulation, in which the changes produced by alterations in the volume and velocity of the blood; in the arterial and venous pressures; and in metabolism and body temperature, are stated. The physiologic causes of changes in the respiratory rate and rhythm and the pathogenesis of orthopnea, cyanosis, and edema are then considered. Chapters on the effects of circulatory failure on the lungs, liver and spleen, kidneys and urine, and the central nervous system precede those on the cardiac compensatory mechanisms and their failure due to morphological change, on enlargement of the heart, on gallop rhythm, on murmurs, and on cardiac pain.

Heart failure is then considered from the viewpoint of the underlying pathologic physiology and anatomy, under the headings of insufficiency of the left heart, of the right heart, of general failure initiated by generalized cardiac strain, and of hypodiastolic heart failure. The chapters on peripheral circulatory failure, alone or in combination with cardiac failure, are especially important, as effective treatment is so dependent on their proper differentiation.

In the succeeding chapters on treatment of heart failure, of the disturbances of rhythm, of the diseases with heart failure or angina pectoris, and of peripheral circulatory failure or shock, the author states clearly the various methods in current use and gives a conservative and scientific estimate of their value. As the anatomic changes in heart failure are permanent if not due to progressive lesions which can not be effectively treated because they are of unknown etiology, he properly emphasizes the value of drugs, of rest, of diet, of surgical and other procedures in the treatment of dynamic changes in the circulation.

This book, which constitutes a very complete review of the subject and contains an excellent bibliography, will give the practicing physician, who must treat his patients with little instrumental aid, a sound knowledge of the why and wherefore of what he should do that he may give the type of treatment found of most value by the laboratory and clinical investigators in this field. It should demand the attention of all practitioners, not only of those interested in the treatment of heart failure, but also of those who must treat peripheral circulatory failure whether it be due to infectious or metabolic diseases, to "surgical shock", hemorrhage, trauma, or burns.

N. S. D.

Farber: Postmortem Examination

THE POSTMORTEM EXAMINATION. *By Sidney Farber, M.D., Associate in Pathology, Harvard Medical School; Pathologist to the Infant's Hospital and The Children's Hospital, Boston. Springfield, Ill.: Charles C Thomas. 1937. Price, $3.50.*

Those of us who have been called on to do an occasional necropsy would willingly have given more than the purchase price to have had this complete manual available, and avoided the embarrassing disclosure that we have injured important structures or not obtained all the necessary anatomic and pathologic information. Every detail of medical procedure relevant to the autopsy is considered, from the permission, through the equipment, safeguards, technic (general and of special organs), to the tables of average weights of organs.

Not the least interesting section is that on pathologic history. When Virchow began his epochal work, the clinician decided, while the patient was still alive, which organ should be the object of investigation, with the result that the postmortem was often valueless. As Dr. Farber says, "Some clinicians today are unaware that what was a historic propriety in the nineteenth century becomes an anachronism in the twentieth."

Adams: Drug Addiction

DRUG ADDICTION. *By E. W. Adams, O.B.E., M.D., A Medical Officer of the Ministry of Health; Late Lecturer on Pharmacology and Therapeutics, University of Sheffield; Joint Secretary, Ministry of Health; Departmental Committee on Morphine and Heroin Addiction. 160 pages. London: Oxford University Press. 1937. Price, $3.00.*

Dr. Adams' book is a very complete treatise, though not large in size, on the present status of drug addiction, from the historical, etiologic, symptomatologic, prognostic, and treatment standpoints. The discussion is world-wide in scope, both as to countries and types of drugs, and as to authorities, many American, who are quoted.

Every treatment is considered and a fair evaluation given to those which have been carried out under controlled conditions.

Dr. Adams believes the most diagnostic point is the characteristic "abstinence" symptoms, which occur when the addict is suddenly deprived of the drug.

Grinker: Neurology

NEUROLOGY. *By Roy R. Grinker, M.D., Chairman, The Department of Neuropsychiatry of the Michael Reese Hospital, Chicago; Formerly Associate Professor of Neurology and Psychiatry, The University of Chicago. Springfield, Illinois: Charles C Thomas. 1937. Price, $8.50. (Second Edition).*

One can scarcely imagine a better book for the neurologist than this one. The current literature has been reviewed and incorporated into the text, and neuroanatomy and neurophysiology have been well discussed and illustrated.

On the other hand, the general practitioner, who needs a text and handv reference, will find that the paragraphs are not broken up so that he can identify the respective sections on diagnosis and treatment except by reading almost the whole section devoted to one disease. Little detail is given in regard to treatment, the whole matter being often left hanging in midair with a few general words. To this statement, there are certain very welcome exceptions, the section on the treatment of epilepsy being clear, definite and clinically practical.

The clinical pictures are of the best, the anatomic illustrations clear, and the histopathologic sections well reproduced.

International Clinics

INTERNATIONAL CLINICS. *By Leading Members of the Medical Profession throughout the World; Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. 328 Pages. 70 Illustrations. 47th Series. Philadelphia: J. B. Lippincott Co. 1937. Price, $3.00.*

The International Clinics are always interesting because they consider what every physician must consider, an individual patient. Diagnostic methods and forms of treatment are discussed in regard to the case at hand.

This volume of the Clinics considers a number of common disease conditions, such as a typical hyperthyroidism, coronary thrombosis, cardiac murmurs, peripheral arterial disease, diabetes, arthritis, treatment of endocrine disturbances, chronic arthritis, and others. There are a number of photographs of patients, who display unusual lesions. To those of us who cling to the old clinical idea that hypothyroidism denotes a phlegmatic temperament, it comes as something of a shock to see represented an intensely nervous myxedemic patient.

The authors of the various clinics are, for the most part, nationally known in their respective fields, and write well.

Solomon: Traffic in Health

THE TRAFFIC IN HEALTH. *By Charles Solomon, M.D., Assistant Clinical Professor of Medicine, Long Island College of Medicine; Lecturer in Materia Medica, Training School for Nurses, Jewish Hospital of Brooklyn. New York: Navarre Publishing Co. 1937. Price, $2.75.*

Every one of us has paid and is paying large sums of money for medicinals that are high in expense and low in efficiency. Our patients are beguiled into purchasing antiseptics that kill no germs; astringents that shrink no pores; reducing agents that may cause thyrotoxicosis or cataract.

Dr. Solomon's book indicts all those who fleece the medically ignorant public, and ex-

poses most of them as being just as ignorant. Sleep-producers, pain-killers, habit-formers, poisonous laxatives, vitamin shotguns, excess acidity, "stone" cures, cosmetics, and cold treatments are a few of the many topics discussed thoroughly and frankly. Untruthful statements are quoted directly from the advertising of such well-known nostrums as Marmola, Midol, Kalms, Ex-Lax, Slim, Grove's Bromo-Quinine, and others, and contrasted with analyses, which show how ineffective or even harmful they are.

This book should be on every clinician's desk (though we cannot at all agree with some of his witty strictures upon some reliable and effective remedies), so that the next patient who states that he has taken some patent medicine can be shown, in print ("if its printed, it *must* be true"), the true contents of the socalled remedy and a definite statement as to its unreliability.

Dr. Solomon is an interesting author, as well as a witty one. Especially enjoyable is his taste for such headings as: "Your Face Is Their Fortune"; "May We Urge a Purge?"; "Gallstones Made to Order"; and "Mineral Water—from the Pump."

Lapham: Disease and the Man

DISEASE AND THE MAN. *By Roger F. Lapham, A.B., M.D. 143 Pages. New York: Oxford University Press. 1937. Price, $2.00.*

Any physician in private practise will find this book a gold mine of pointers on the *art* of medicine. Such difficult situations as handling the patient with a chronic disease who will not follow directions; determining which symptoms complained of are important; the matter of consultations; the leaving of a loophole so that a tentative diagnosis will not be judged harshly in the light of later developments and many others are discussed directly and pleasingly. The only physician who will not be benefited by referring to this volume on a number of occasions is one who no longer cares what impression he makes on his patients and their families.

Yearbook of Pediatrics: 1936

THE 1936 YEAR BOOK OF PEDIATRICS. *Edited by Isaac A. Abt, M.D., D.Sc., Professor of Pediatrics, Northwestern University Medical School; Attending Physician, Passavant and St. Luke's Hospitals, Chicago; with Collaboration of Arthur F. Abt, M.D., B.S., Associate in Pediatrics, Northwestern University School of Medicine; Attending Pediatrician, Michael Reese Hospital; etc. Chicago: The Year Book Publishers. 1937. Price, $2.50.*

Yearbooks, like flowers, bloom in the spring. Unlike flowers, they are very practical. This volume, like its predecessors, contains articles from the pediatric literature on every angle of diseases of infancy and childhood. Especial attention is paid to the subjects of vitamins and viruses.

Vitamin A deficiency is widespread in children in Iowa, Dr. Jeans finds by means of the photometer test for dark adaptation. Vitamin A or carotene relieves the visual defect. During a short cooking period, some vegetables lose from 40 to 80 percent of their vitamin C. The pink disease (acrodynia) can be cured by radiant heat. Lack of vitamin C may result in "growing pains". These are typical samples of a very few of the abstracts.

Rudhyar: Astrology of Personality

THE ASTROLOGY OF PERSONALITY: A Re-formulation of Astrological Concepts and Ideals, in Terms of Contemporary Psychology and Philosophy. *By Dane Rudhyar. New York: Lucis Publishing Co. 1936. Price, $3.50.*

Of late, a certain rudimentary and primitive type of astrology has been enlisting the personal attention of a good many more people, and of a different class of people, than most of us imagine. In spite of the scoffing of the scoffers, many who are considered as possessing more than ordinary intelligence are turning to self-styled astrologers for advice as to betting on horse races, marrying and giving in marriage, stock-market speculations, and a host of other personal activities.

This scholarly volume has nothing to do with that kind of charlatanry. It fully demonstrates that astrology is *not* mere fortune telling (though much that masquerades under its name is little more than that), but is actually the basis of alchemy (which, also, is grossly misunderstood), as well as of religion and psychology.

The author says: "Astrology is fundamentally the algebra of life. But its applications are as numerous as the types of life it coordinates, integrates, and to which it gives the significance of Order." He goes on to demonstrate that, like algebra, it is a *mathematical* or exact, rather than an empiric or experimental science.

The discussion may be divided into four parts: A brief history of astrology; astrology and modern thought (in which the most advanced scientific and philosophic writers are freely quoted); the technics of scientific astrology; and the use of astrology in the processes of individual integration and civilization.

This is no light summer reading! To get any real good out of it, the reader must be equipped with a sound working knowledge of the experimental sciences (such as physics and chemistry), of mathematics, of astronomy, and of psychology as it is now understood; as well as at least a smattering of that superphysical science which is called occultism.

To those who obtain most of their intellectual pabulum from the current newspapers and magazines, it would be merely gibberish; to the general run of reasonably intelligent, but strongly opinionated readers, arrant nonsense; but to a relatively few open-minded intellectual gymnasts, who love to exercise the sinews of the mind in tough undertakings, it will prove a mine of unusual information and thought-stimulating ideas.

Guedel: Inhalation Anesthesia

INHALATION ANESTHESIA. *By Arthur E. Guedel, M.D., Associate Clinical Professor of Surgery (Anesthesia), University of Southern California School of Medicine. New York: The Macmillan Co. 1937. Price, $2.50.*

The sub-title of this volume, "A Fundamental Guide," is well chosen. It briefly and clearly relates the basic laws of anesthesia by inhalation, the dangers and complications which may be expected, and their treatment. Not the least interesting feature of the book is its recital of anesthetic accidents by actual, brief case histories, each of which drives home a point of importance.

It would be well if all who do surgery would read of the dangers and deaths induced by carrying out a surgical procedure before the patient was fully unconscious. The suddenly increased production of epinephrin may result in ventricular fibrillation, especially if some surgical procedure is being carried out under "light" anesthesia.

This is another of the Macmillan Surgical Monographs.

New Books Received

The following books have been received in this office and will be reviewed in our pages as rapidly as possible.

MODERN TREATMENT IN GENERAL PRACTICE. *Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E. Volume III. Baltimore: William Wood & Company. 1937. Price, $4.00.*

PRACTICAL PROCTOLOGY. *By Louis A. Buie, A.B., M.D., F.A.C.S. Philadelphia and and London: W. B. Saunders Company. 1937. Price, $6.50.*

DIATHERMY. Including Diathermotherapy and Other Forms of Medical and Surgical Electrothermic Treatment. *By Elkin P. Cumberbatch, M.A., B.M. (Oxon.), D.M.R.E. (Camb.), F.R.C.P. 3rd Edition. With Nine Collaborators. Baltimore: William Wood & Company. 1937. Price, $6.00.*

MY SCRAPBOOK OF MEDICINE. *By Louis R. Effler, A. M., M.D., F.A.C.S. Toledo, Ohio: McManus-Troup Company. 1937. Price, $3.00.*

MEDIZINISCHE PRAXIS SERIES. Volume 24. Der Vitaminhaushalt in der Schwangerschaft. *By Dr. med Gerhard Gaehtgens. Dresden and Leipzig: Theodor Steinkopff. 1937. Price, RM 12.—, paper bound; RM 13.20, cloth bound.*

THE SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM. *By George E. Gask, C.M.G., D.S.O., F.R.C.S. (Eng.), and J. Paterson Ross, M.S. (Lond.), F.R.C.S. (Eng.) 2nd Edition. Baltimore: William Wood & Company. 1937. Price, $4.50.*

A METHOD OF ANATOMY. Descriptive and Deductive. *By J. C. Boileau Grant, M.D., M.B., Ch.B., F.R.C.S. (Edin.) Baltimore: William Wood & Company. 1937. Price, $6.00.*

A TEXT-BOOK OF OPHTHALMIC OPERATIONS. *By Harold Grimsdale, M.B., F.R.C.S., and Elmore Brewerton, F.R.C.S. 3rd Edition. Baltimore: William Wood & Company. 1937. Price, $6.00.*

INTERNATIONAL CLINICS. *Edited by Louis Hamman, M.D. Vol. IV, 47th Series, December, 1937. Philadelphia: J. B. Lippincott Company. 1937. Price, $3.00, current year; $5.00, back years.*

MENTALITY AND HOMOSEXUALITY. *By Samuel Kahn, B.S., M.A., Ph.D., M.D. Boston: Meador Publishing Company. 1937. Price, $3.00.*

A PRIMER FOR DIABETIC PATIENTS. An Outline of Treatment for Diabetes with Diet, Insulin and Protamine Zinc Insulin. *By Russell M. Wilder, M.D., Ph.D., F.A.C.P. 6th Edition, Reset. Philadelphia & London: W. B. Saunders Company. 1937. Price, $1.75.*

MINOR MALADIES AND THEIR TREATMENT. *By Leonard Williams, M.D. 7th Edition, Baltimore: William Wood & Company. 1937. Price, $3.75.*

GENITAL ABNORMALITIES, HERMAPHRODITISM AND RELATED ADRENAL DISEASES. *By Hugh Hampton Young, M.A., M.D., Sc.D., F.R.C.S.I., D.S.M. Baltimore: The Williams & Wilkins Company. 1937. Price, $10.00.*

CLINICAL ALLERGY. Due to Foods, Inhalants, Contactants, Fungi, Bacteria and Other Causes. Manifestations, Diagnosis and Treatment. *By Albert H. Rowe, M.S., M.D. Philadelphia: Lea & Febiger. 1937. Price, $8.50.*

PEDIATRIC DIETETICS. *By N. Thomas Saxl, M.D., F.A.C.P., F.A.A.P. Foreword by Adolph G. DeSanctis, M.D., F.A.A.P. Philadelphia: Lea & Febiger. 1937. Price, $7.00.*

A MEDICAL FORMULARY. *By E. Quin Thornton, M.D. 14th Edition, Thoroughly Revised. Philadelphia: Lea & Febiger. 1937. Price, $2.75.*

CUTANEOUS CANCER AND PRECANCER. A Practical Monograph. *By George M. Mackee, M.D., and Anthony C. Cipollaro, M.D. With a Foreword by Francis Carter Wood, M.D. New York:* The American Journal of Cancer. *1937. Price, $3.75.*

PHYSICAL EXERCISES FOR ASTHMA. *Second (revised) Edition. 1937. A copy of the pamphlet can be obtained by sending an International money order for 1/— to the Asthma Research Council, King's College, Strand, London, W.C.2, England.*

MEDICAL NEWS

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The Human Guinea Pig

MANY people have, no doubt, played the part of guinea pigs, voluntarily (very, very rarely) or involuntary, but **Dr. Edward Francis,** the 65-year-old bachelor dean of the infectious diseases division of the U. S. Public Health Service, whose picture appears above, has done this so many times, with a full understanding of the possible consequences, that he has earned the title *The* Human Guinea Pig. First he inoculated himself with the germ of tularemia, and received the gold medal of the American Medical Association for his discovery that rabbits are the carriers of this disease. Next he tried undulant fever; following his recovery from which he let an infected wood tick bite him, and proved that these arachnids are the vectors of Rocky Mountain spotted fever.

His latest exploit was with relapsing fever, another tick-borne disease. Having kept infected ticks in a pill box, without food or water, for five years, during which time they begot progeny, he let one of the younger generation bite him and promptly developed the disease, proving that its germs were transmitted by heredity.

Booklet on Child Feeding

A NEW 68-page brochure, "How to Feed Young Children in the Home," by Mary E. Sweeny and Dorothy C. Buck, of the Merrill-Palmer Motherhood and Home Training School, Detroit, has recently been issued and can be obtained on request from the Irradiated Evaporated Milk Institute, 307 North Michigan Ave., Chicago.

Information for Prospective Nurses

THE Nursing Information Bureau, 50 West 50th St., New York City, has prepared several brochures (especially "Nursing and the Registered Nurse") which should be of great interest and value to young women who contemplate entering that profession. Physicians who wish to assist such young women can probably obtain samples, and can surely obtain a price list, from the Bureau, at the above address.

Endocrinology a Monthly

AT the annual meeting of the Association for the Study of Internal Secretions, last June, it was decided that, due to the increasing interest in and work upon the ductless glands, their official organ, *Endocrinology,* will be published monthly beginning with January, 1938. The membership dues in the Association will be increased accordingly.

European Hormone Products Available

PLANS have recently been completed in The Hague for the collaboration of the Organon Laboratories, of Holland, with Hoffman-LaRoche, Inc. A new organization, the Roche-Organon Co., will undertake the manufacture of the well-known Organon products in the United States, without interfering in any way with the functions or integrity of the parent companies, in their respective countries.

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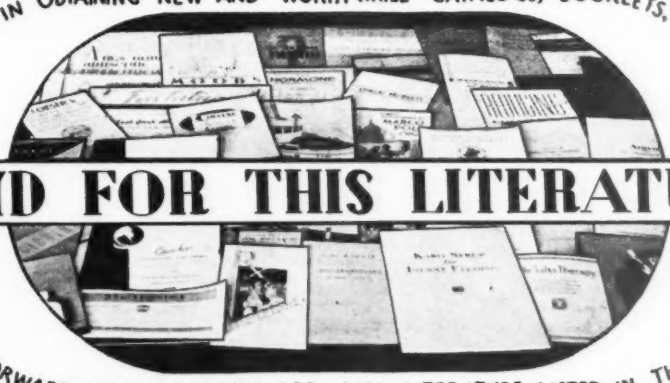

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4 Taurocol. The Paul Plessner Co.

5 Specific Urethritis — Gonosan "Riedel." Riedel & Co., Inc.

6 Dr. Weirick's Sanitarium. Dr. G. A. Weirick.

8 *Journal of Intravenous Therapy.* Loeser Laboratory.

9 Elixir Bromaurate in the Treatment of Whooping Cough and other Cough Disorders. Report of Cases. (Booklet.) Gold Pharmacal Co.

10 Menocrin. The Harrower Lab., Inc.

12 Endothyrin for use in Hypothyroidism, etc. The Harrower Lab., Inc.

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17 Feeding Diabetic Patients. Knox Gelatine Labs.

19 Menstrual Regulation by Symptomatic Treatment. Martin H. Smith Co.

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23 Danish Ointment. Reprint *J. A. M. A.* Acne Rosacea. The Original 24-Hour Treatment for Scabies. The Tilden Co.

25 Clinical Guide for Female Sex Hormone Therapy. Schering Corp.

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27 Reducing Diets and Recipes. Knox Gelatine Laboratories.

29 Colloidal Mercury Sulphide-Hille. Hille Laboratories.

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54 Use of Zinc Borate in Otolaryngology. Hille Laboratories.

55 Prontosil (in ampules for injection) and Prontylin (in tablets for oral use) — Chemotherapy of Streptococcus, Meningococcus, and Urinary Infections. Winthrop Chemical Co., Inc.

61 Body Chemistry as Related to the Endocrine Glands. Reed & Carnrick.

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97 Reprint, "Dysmenorrhea: A New and Effective Treatment." The Lupex Co.

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